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Pulpwood Association and Others Indicted

Federal Grand Jury Accuses American Pulpwood Association and Twelve Corporations With Conspiring To Violate Fair Labor Standards Act — Charges Allege Underpayment of Workers.

The American Pulpwood Association and twelve corporations that handle 80 per cent of the nation's business in the making of kraft paper and similar products were accused yesterday of conspiring to keep down the wages of 70,000 forest workers. The charges were contained in an indictment obtained at the direction of Thurman Arnold, head of the Attorney General's anti-trust division.

The true bill differed in several respects from others obtained by the anti-trust division. Naming only the corporations and no individuals as defendants, it attributed a concerted effort to evade the minimum wage law to a group of competitors. Heretofore only single companies have been prosecuted under that law.

There was a technical difference, also, between the bill opened last week and other anti-trust indictments. Violation of the Sherman Anti-Trust Act is a misdemeanor, under which the maximum penalty for a corporation is $5,000. Conspiracy is a felony, under which a maximum fine of $10,000 is possible.

Not Directly Employed by Mills

Although the charges were based on the alleged underpayment of three-quarters of the workers concerned, none of the corporate defendants directly employ any of these, it was said. The actual forest workers, more than half of whom are Negroes, are employed by "producers" and "sub-producers," who supply the wood used by the defendants in making woodpulp and paper products.

These "producers," however, are subject to strict control of the defendants, it was set forth in the indictment. The defendant corporations allotted territories to the producers, regulated, controlled and limited their earnings and maintained forestry staffs that "supervised in detail the manner and methods of cutting pulpwood on the part of producers and subproducers," it was declared. Financial assistance was provided also by the companies to the producers and sub-producers who were the direct employers of the forest workers, the indictment alleged.

Under the Fair Labor Standards Act of 1938, which embodies the Federal wage and hour regulations, the workers should have received at least 25 cents an hour from Oct. 24, 1938 to Oct. 23, 1939, and 30 cents since then. Some of the defendants instituted time-studies to fix piece-rate wages that would enable an average worker to earn at least these minimums, but no adequate piece-rates were established, the indictment averred. It was estimated that an average worker might earn about 19 cents an hour.

List of Defendant Companies

Defendants in the case included the Johns-Manville Products Corporation of Virginia, Brunswick Pulp and Paper Company, Champion Paper and Fibre Company, Gulf States Paper Corporation, Mead Corporation of Ohio, National Container Corporation of Delaware, North Carolina Pulp Company, Southern Advance Bag and Paper Company, Inc., Southern Kraft Corporation, St. Joe Paper Company, Union Bag and Paper Corporation and West Virginia Pulp and Paper Company. All have plants in the Southern States.

The indictment was obtained on July 1 by Christopher Del Sesto and Frank H. Patton, special assistants to Attorney General Robert H. Jackson. The Southern Kraft Corporation and the National Container Corporation, of Delaware, were defendants under indictments obtained last summer by the anti-trust division. Both indictments were dismissed when the defendants consented to the entry of injunctions.

George H. Mead, president of the Mead Corporation, Chillicothe, Ohio, described as "perfectly ridiculous" the indictment of the American Pulpwood Association and twelve corporations on charges of conspiracy to violate the Wage-Hour Act.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 10, 1940—During the week ended June 22, the Government purchased $901,216.75 worth of paper and allied products under the Walsh-Healey Act as follows: $17,734.00 worth of paper towels for Veterans Administration from M. S. Ginn & Co., Washington, D. C.; $31,050.00 worth paper napkins for War Medical Department from L. Hyman & Sons, N. Y. C.; $12,641.20 worth of printing paper for War Air Corps from Walker Goulard Plehn Company, Inc., N. Y. C.; $839,791.55 worth of distinctive paper for Public Debt Service from Crane & Co., Inc., Dalton, Mass. This last mentioned is an indefinite contract other than General Schedule. Purchases to be made if and when needed.

Resolution Proposes Pulp Industry Probe

Representative Fulmer of South Carolina Introduces Resolution In House To Investigate Pulpwood Purchasing Methods of Pulp and Paper Mills — Prices of Paper, Wood Pulp and Allied Pulp Products Are Included.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 10, 1940—Representative Fulmer of South Carolina has introduced a resolution in the House (H. J. Res. 576) to investigate the apparent monopolistic purchasing of pulp wood by pulp and paper mills under a contract purchase system from farmers and other owners, price fixing of paper and other pulp products under trade-practice rules and regulations, including cost of distribution.

The resolution, which has been referred to the House Committee on Agriculture, is as follows: To investigate the apparent monopolistic purchasing of pulpwood by pulp and paper mills under a contract purchase system from farmers and other owners, price fixing of paper and other pulp products under trade practice rules and regulations including cost of distribution.

WHEREAS the present war in Europe has disrupted and will continue to disrupt the normal flow of pulpwood, wood pulp, and paper into the United States from other countries, especially from the Scandinavian countries, resulting in a further heavy drain upon our forest resources in the United States; and

WHEREAS because of the increased demand for pulpwood and because of the continued increase in the consumption of paper which has been tremendously increased during the past fifteen years; and

WHEREAS it takes about two standard cords of wood to produce a ton of paper for which, according to an investigation just made by a special congressional committee, pulp and paper mills are paying the very low price of from five to seven dollars per what they call a unit, containing one hundred and sixty cubic feet, delivered to the mills, and from said price farmers, under an apparent, monopolistic program by the mills, especially in the South, receive only from 15 cents to $1 per cord for stumpage; and

Pulpwood Prices Deemed Too Low

WHEREAS the pulp and paper mills have recently advanced the price of paper from $65 to $85 per ton, and, in that this advance in price of paper has not been reflected in prices paid for stumpage and pulpwood, particularly to owners, including farmers and wage earners for cutting and hauling pulpwood, which are on a starvation basis: Now, therefore, be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Agriculture, through the Forest Service, is authorized and directed to investigate (1) the apparent monopolistic purchase procedure of pulpwood through contractors and prices being paid to these contractors and the price paid to subcontractors and buyers of pulpwood and the price paid to farmers and owners of pulpwood, including standard of wages paid in pulp and paper mills and to wage earners, including wages paid for cutting and hauling pulpwood; (2) the current cost of producing and distributing wood pulp and paper; (3) any related factors required in determining whether wage earners, farmers, and other forest owners or operators are receiving for their wages, stumpage, and pulpwood a fair and equitable share of the sale price of pulp and paper during the past year and a fair and equitable share of the 30 per centum recent increase in the price of paper; (4) the relationship of pulp and paper mill associations of which the manufacturers of pulp and paper are members; and (5) the influence and control that these associations have over the operations of their members as to controlled production, distribution, and the actual fixing of prices under trade practice rules and regulations formulated and agreed to by members of said associations.

Resolution Proposes Hearings

SEC. 2—For the purposes of this joint resolution, the Secretary of Agriculture, through his authorized representatives, is authorized and directed to hold hearings at such times and places in the District of Columbia and elsewhere in the United States, to employ such experts and such clerical, stenographic, and other assistants, to require by subpena the attendance of such witnesses and the production of such books, papers, and documents, to take such testimony, and to make such expenditures, as he deems necessary in connection with this investigation; and oaths or affirmations may be administered by any authorized representatives of said Secretary. Other agencies of the Government shall, upon request of the Secretary, furnish him with such available information in the conduct of this investigation as he deems necessary. In case of contumacy or refusal to obey a subpena issued under this joint resolution to any person by the Secretary or his authorized representative, any district court of the United States, including the District Court of the United States for the District of Columbia, within the jurisdiction of which said person guilty of contumacy or refusal to obey is found or resides, upon application by the Secretary or his authorized representative may issue to such person an order requiring such person to appear before the Secretary or his authorized representative, or an examiner designated by the Secretary, there to produce documentary evidence if so ordered, or there to give evidence touching the matter in question; and any failure to obey such order of the court may be punished by said court as a contempt thereof. No person shall be excused from attending and testifying or from producing books, papers, contracts, agreements, and other documents before the Secretary or his authorized representative, or in obedience to the subpena of the Secretary or his authorized representative, on the ground that the testimony or evidence, documentary or otherwise, required of him, may tend to incriminate him or subject him to a penalty or forfeiture; but no individual shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter, or thing concerning which he is compelled, after having claimed his privilege against self-incrim-

ination, to testify or produce evidence, documentary or otherwise, except that such individual so testifying shall not be exempt from prosecution and punishment for perjury committed in so testifying.

SEC. 3.—The Secretary of Agriculture shall report to the Senate and the House of Representatives as soon as practicable the result of this investigation. If the Senate or House is not in session, the report shall be made to the Speaker or the President of the Senate, as the case may be.

SEC. 4.—There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, the sum of $———— for conducting this investigation.

Paper and Twine Club Elects Officers

The Paper and Twine Club held its annual meeting and election, and golf tournament, on Friday and Saturday, June 21 and 22, 1940, at the Hotel Breakers, Cedar Point, Sandusky, Ohio. The annual election resulted in the election of the following officers: President, T. Floyd Smith Jr., Louisville Paper Company, Louisville, Ky.; vice president, Stanley O. Styles, Martin Cantine Company, Saugerties, N. Y.; secretary-treasurer, John L. Richey, Cincinnati, Ohio.

There was a general discussion of the Club's activity, with a recommendation to the newly appointed officers that they endeavor to work out some plan to bring out a larger attendance at the meetings, the suggestion being made that possibly the National Paper Trade Association be urged to hold its regional meeting, together with meetings of various local associations in the middle western territory on the same day as that of the Paper and Twine Club's annual meeting in June, and that the jobber sections of such meeting be in charge of the National Paper Trade Association, with the cooperation of the Paper and Twine Club.

New Mill in Peru Increases Production

WASHINGTON, D. C., July 3, 1940—The new paper mill erected by the Sociedad Agricola Paramonga at Super, Peru, entered production as scheduled during September 1939, according to a report from the office of the American Commercial Attache, Callao-Lima. Since operations began the plant has worked continuously and currently is producing about 12 metric tons of unbleached sulphite wrapping paper. Total production during the first year of operation probably will exceed 4,000 metric tons. Orders are said to be exceeding production and as the efficiency and skill of the plant workers improve, it is planned to speed up production so that the mill will turn out about 15 tons daily.

St. Helens Builds Warehouse

ST. HELENS, Ore., July 5, 1940—Construction of the $80,000 storage warehouse for the St. Helens Pulp and Paper Company has been completed and the building will be ready for use in the near future. The structure was erected by a crew hired by George H. Buckler, Portland contractor,.

The new warehouse has a floor area of 115 by 275 feet and is single story in height. The floor is of reinforced concrete and the remainder of the building is of wood construction. It will be used for the storage of paper stock.

Indianapolis Demand Encouraging

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 10, 1940—While the holiday cut into the paper trade in this area, general conditions remain good and there is no reason why this month should not be as good as the same month a year ago and perhaps better. Local jobbers and manufacturers declare there are no particularly ill omens on the horizon and demand has held up well in most lines.

Dealers are expected to be in the market for summer specialties this week in a big way. The demand last week was very high and most dealers were not carrying large stocks. These stocks now are badly broken and depleted and they will do their reordering this week to a large extent. In spite of the late spring, demand for summer specialties in this section has been good. Prices are holding firm. Demand for wax paper and cellophane also is good. Tissues are ruling steady with no price change.

Fine papers were moving evenly with no disturbing features seen in the market. The summer slump this year is not as marked as it was a year ago. Prices are firm and no disposition is being shown to shave them. Covers, bonds and ledgers for the printing trade are holding up well. Demand for newsprint is ahead of a year ago and July demand is expected to show no lessened demand. The demand from the smaller rural papers is reported to have improved considerably. Metropolitan demand is slightly ahead of last year. Prices have shown little variation during the last month.

Building paper demand continues to surge ahead. It likely would be considerably higher if there were not a shortage in some building materials which has kept this from being perhaps the largest year in history. As it is, the situation is not discouraging. Dealers are carrying adequate stocks, which, while not large, are being kept well balanced.

Demand for wrapping paper and bags is increasing, according to jobbers. Most of this is coming from the regular retail sources, which are enjoying a fine business.

Little change is seen in the paper stock and rag market. Mill takings are not all the local trade would desire, but prices are comparatively high when compared with the same time a year ago.

To Start Champion Mill June 19

With the opening of the new paper mill in Houston, on June 19, the Champion Paper & Fibre Company announced that this mill was constructed to provide coated paper for *Life* under a contract signed last August. This mill also will produce bond, envelope and special grades of paper for the southwestern market.

Champion research engineers pioneered in the development of methods by which southern pine is being used to make book paper. This new mill expands the company's operations and uses still larger quantities of southern raw material, whose greatest value was previously unrecognized. This $3,500,000 paper making unit is an addition to the $3,000,000 pulp mill erected in Houston in 1937. The combination of these two mills is unique in the manufacture of book paper in the South, for it permits production of wood-to-paper in a straight line operation.

The estimated daily capacity of the new paper mill is 120 tons of machine coated and uncoated paper.

Several Mills Close in Midyear Shutdown

Plan of Using July Fourth Week For Midyear Closing Was Followed By Some Wisconsin Mills This Year—Lack of Agreement Delays Wolf River Reservoir Prospect—Traffic Men Object To Coal Freight Change.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 8, 1940—The plan of using the Fourth of July holiday week for a midyear shutdown was followed by several of the Wisconsin paper mills this year.

Riverside Paper Corporation, Appleton, Wis., suspended operations in its mill July 1 for one week to give all employees one week's vacation with pay, under a policy announced two months ago. The converting department continued to operate, however, because this is its busy season. These workers will be given their week's vacation with pay September 1, when this department will be closed.

Thilmany Pulp and Paper Company, Kaukauna, Wis., was shut down for four days last week, and employees with the company three years or more received pay for three of the days. Cessation of operations gave opportunity to drain and clean the large water settling basins, wash up the calender room preparatory to repainting, clean the boiler houses, and move stored material to the recently completed warehouse.

Fox River Paper Corporation, Appleton, Wis., closed down last week for inventory, and planned to resume operations Tuesday, July 9. Operations also were suspended by Appleton Coated Paper Company for the holiday week to give the employees a vacation.

Lack of Agreement Delays Reservoir

Differences over land values and charges for engineering and legal services have caused delay in approving the application made to the Wisconsin Public Service Commission by the Wolf River Reservoir Company to construct the proposed storage reservoir on the Wolf River near Lily, Wis. Hearings were postponed to August 20 by the commission when paper mills and other water power users in the Fox River Valley requested a fair appraisal of lands surrounding the reservoir site which the company will have to buy. About 5,000 acres will be required, of which the company now owns 3,000.

It was also pointed out that the control of the $100,000 stock issue of the Wolf River Reservoir Company is vested in the firm's officers, who received it in consideration for land, labor and expenses connected with the development of the project to its present state. Among the officers are Earl Plantz of Antigo, Wis., attorney, and Harold Brooks of Antigo, who is the secretary.

The federal Indian service at Washington is also keeping an eye on the project, because of its effect on the scenic waters of the Wolf River where they flow through the Menominee Indian reservation.

Object to Freight Rate Change

Objections have been made by the Wisconsin Paper and Pulp Manufacturers Traffic Association to a petition filed by shippers of coal from docks at Milwaukee, Wis. for modification of intrastate rates on shipments to the Fox River Valley. The petition has been placed before the Wisconsin Public Service Commission and a hearing is to be held at Madison, Wis. on July 11.

Rates now effective were installed May 1, 1939, when an order reducing rates on hauls up to 100 miles by 10 per cent was issued. This gives shippers from docks at Green Bay, Wis., an advantage of ten to 15 cents per ton of coal delivered to paper mills at Appleton, Neenah and Menasha. The Milwaukee coal operators desire this advantage removed so they can obtain more of the valley business, and are requesting that railroad freight rates be fixed on an equal basis from both Milwaukee and Green Bay.

Marathon Dines Safety Contestants

Three hundred employees of the Marathon Paper Mills Company, Rothschild, Wis., were supplied a dinner by the company at the Elks club at Wausau, Wis. July 23 as a reward for completion of a safety contest. Contestants were members of the paper makers' union and the sulphite workers' union, the former winning with a record of no lost-time accidents in six months. A decorative wine keg was presented the winners by Fred W. Braun, safety engineer of the Employers Mutual Liability Company. Voyta Wrabetz, chairman of the Wisconsin Industrial Commission, was the speaker, commending the workers for their record. D. C. Everest, president and general manager of the company, promised a similar dinner annually if the employees would continue their outstanding safety work.

The company's Menasha products division also held a dinner June 27 at Menasha hotel, Menasha, Wis., upon completion of a two months' record of operations without an accident. Forty-eight members of the mill safety committee attended. A motion picture, "Highway Safety," was shown by Police Chief Irving Stilp of Neenah, Wis. E. D. Stoetzel of Rothschild, Wis., industrial relations director of Marathon mills, talked on the company's safety record.

Bank To Distribute Consolidated Dividends

Because the number of stockholders of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has increased from less than 500 last December to approximately 1,000, E. B. Redford, secretary of the company, has announced that transfers of common stock hereafter will be made through the Harris Trust and Savings Bank of Chicago. Dividends also will be disbursed by the bank. The Continental Illinois National Bank and Trust Company, Chicago, will be registrar of the company's common stock. It is said the change will give more prompt service to stockholders.

While the stock is not listed on any of the exchanges, it is subject to considerable activity in over-the-counter transactions by as many as 2,000 dealers. The stock dipped to about its par of $25 per share in the recent decline of the market, but is holding around $28.50 bid and $30.50 asked.

Chicago Market Reports Better Business

Strong and Rising Paper Demand In Midwest Territory Tempered By Lagging Buying In Printing and Allied Trades With Some Hesitancy By Jobbers—Paper Salesmen Hold Golf Outing—Other Late Market News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 8, 1940—A part of the Chicago paper market indicates it is in the midst of business improvement of "boom" proportions so far as the mill representatives here are concerned. In virtually all grades mills are busy with an average back log of from two to three weeks reported. This situation applies to sulphites, books, covers and other grades with krafts continuing to be definitely in a strong upsurge and groundwoods and newsprints likewise experiencing good business. Waste papers were likewise strong as a certain indication of even more bullish days to come.

Not Yet Stepping Up Production

Local jobbers, however, have not been so generous in their praise of the present market. Reports indicated that printers, engravers and other business users of paper were not yet stepping up production in line with the current market situation. Business hesitancy, with several factors contributing to the situation, was marked down as the reason for the not quite so good reports from the jobber sources. There are plenty of reports to the effect that wholesale prices are bound to go further upward, with perhaps a lull if Germany secures a complete victory. However, rearmament and its contribution to jobs and payrolls, is still expected to be the factor in developing retail business to proportions comparable to the mill business now being done.

Paper Salesmen on Golf Outing

Fifty-six paper salesmen and guests participated in the golf outing held by the western division of the Salesmens Association of the Paper Industry on June 21. A perfect day greeted the golfers who "worked over" the Park Ridge Country Club course. Prize winners, as relayed by Pat Patterson of the Flambeau Paper Company, demon chairman of the golf committee, are as follows:

Low gross, L. K. Prentiss, Bermingham & Prosser; blind bogey, F. I. Prentiss, Hollingsworth & Whitney; low net (17 and under), C. Foster, J. W. Butler Paper Company; low net (18 and over) A. B. Tucker, Parker, Thomas & Tucker Paper Company; second low net (18 and over) R. C. Swan, Champion Paper and Fibre Company; third low net (18 and over) J. J. Barrett, McIntosh Paper Company; low net, first nine, W. J. Tilden, Mead Sales Company; low net, second nine, E. J. Rolain, Mosinee Paper Mills; low putts, first nine, H. A. Fulton, Blunden Lyon Company; low putts, second nine, Jim Coy, Flambeau Paper Company; high gross foursome, Dick Morgan, Morgan Wallpaper Mills; Ira Myers, Pilcher Hamilton Company; J. H. Coy and Al Harmon, Pilcher Hamilton Company. The low net foursome was composed of R. C. Swan; G. Frelinger, J. W. Butler Paper Company; C. Foster and G. McLeod also of Butler. Low putt foursome honors went to Hank Fulton and Ken Lamond of Blunden Lyon, Frank Haggerty of the Haggerty Paper Company and Burt B. Fisher, Bergstrom Paper Company,

The next outing is scheduled for July 19 at the Bob-O-Link Country Club.

J. Pirie Accepts New Position

Joe Pirie, widely known to the Chicago paper trade and particularly to those buyers who deal in fine papers, is reported to have recently accepted a position as the Chicago territory representative of Paper Manufacturers Company, Incorporated, with headquarters in Philadelphia. Mr. Pirie, who has been identified with the paper trade in this and nearby localities for over twenty years, will represent the well known line of Perfection flat gummed papers from a headquarters office located at 209 S. LaSalle Street. The line will include high grade gummed papers especially fitted for label printing.

Add New Brown Lines

Already adequately representing the products of the L. L. Brown Paper Company in this territory, the Messinger Paper Company has recently increased that representation through the addition of four new Brown manufactured items which will make a complete representation locally for the producers. The four new papers are Forward Bond, Escort Ledger, Escort Bond, and Machine Posting.

C. H. Campbell Elected Vice President

Charles H. Campbell, former general sales manager of Sonoco Products Company of Hartsville, S. C., was elected a director and vice president in charge of sales at a meeting of the stockholders on June 26.

Mr. Campbell has been actively engaged in the sales department of Sonoco Products Company makers of textile paper carriers for more than twenty years. He is widely known throughout the textile and paper industries. During his time the activities of the company have expanded greatly, both in number of items in the line and total volume of products sold.

In addition to the general sales offices in Hartsville and the Northern Sales Office in Mystic, Conn., foreign sales representatives are located in Mexico, Canada, England, Australia and Brazil.

Mr. Campbell has an enviable record of service to his community, serving two terms as mayor of Hartsville and on various appointments in both city and county affairs.

New Escort Ledger Agents

The L. L. Brown Paper Company of Adams, Mass., announces the appointment of the following distributors of Escort Ledger and Machine Posting, the recently introduced 50 per cent rag ledger: The Whitaker Paper Company, Atlanta, Ga.; the B. W. Wilson Paper Company, Richmond, Va.; and the Epes-Fitzgerald Paper Company, Columbia, S. C.

Photo-Electric Side Register Control

As Adapted to Web Operated Machines Such as Slitters, Winders, Web Printing Presses, Coaters and Waxers

By H. E. Overacker, Cameron Machine Co.

The use of electric eye side register control, or technically, electronic side register control on roll converting machines, is a natural outgrowth of the advances made in recent years by the Cameron Machine Company in web tension control. Originally the goal with regard to web tension control was to improve the operation of roll-winding machines by providing a constant tension on the web thus eliminating the need for the operator to adjust the friction on the mill roll brake with variations in the speed of the machine or the diameter of the mill roll. The results obtained by use of the constant web tension control were excellent. Without the attention of the operator, the friction adjustment on the mill roll brake was controlled by the web itself from the start to the finish of the run, while the rewound rolls produced were of even density from the core out.

From the successful application of constant web tension control to rewinders of narrow width, the use of this equipment spread to heavy duty rewinders in paper mills and also to web-operated printing presses and other machinery operating from the roll. Such equipment in appropriate design is now being used on rewinders ranging in width from 21 to 213 inches and on web fed presses such as Chambon, Heinrich, Kidder, Meisel, New Era, Webendorfer, and also Waldron and Shartle-Bevis waxers, Potdevin bag machines and other special applications.

When constant web tension control was applied to web printing presses, there was a noticeable improvement in lengthwise register and that in turn brought up the question of what to do about improving crosswise register, when presses were forced to operate with an unevenly wound or telescoped mill roll. Prior to the advent of constant web tension control, attempts to control side register with the electric eye were meaningless, so long as the tension on the web was variable. Engineers interested in electronic application to side register on equipment operating from the roll were quick to see that Constant web tension control was the means by which photo electric side register control could be made practical.

A complete description of constant web tension control will be found in various paper and printing trade journals[1]. For the purpose of a comprehension

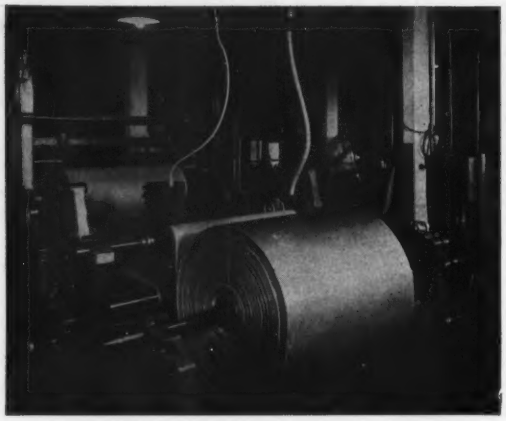


FIG. 2.
Fast-Running Gummed Tape Slitter Equipped with Photo-Electric Side Register Control.

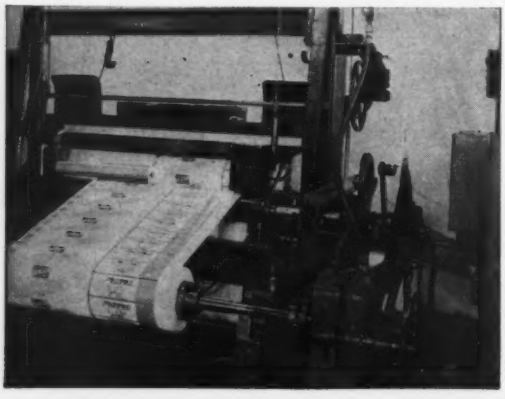


FIG. 1.
Photo-Electric Side Register Control as Used with Fast-Running Slitter and Rewinder in Waxing Plants.

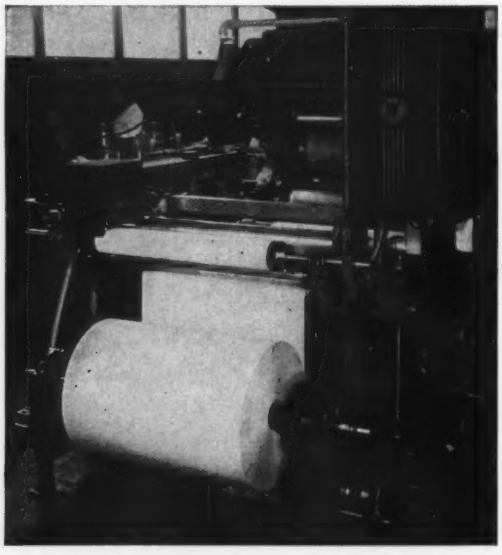


FIG. 3.
New Era Press Equipped with Photo-Electric Side Register Control.

[1] Paper Trade Journal, Aug. 18, 1938; Printing Equipment Engineer, Nov., 1938; Fibre Containers, Jan., 1939; Papier-Zeitung, May, 1939.

of this article it is sufficient to know that a constant web tension control consists esentially of a floating roll riding in a horizontal rack and connected through lever, or levers and gears, to the friction brake on the mill roll. The web is threaded through the machine so that a pull is exerted on this floating roll. If the pull is heavy, the brake friction is relieved and when the pull is light then more friction is applied to the mill roll brake. By means of counterweighting, the floating roll can be adjusted for any grade of paper or any practical degree of tension. In actual operation the control is very sensitive and the roll does not float far in either direction.

We now come to the integration of the Photo Electric Side Register Control with Constant Web Tension Control.

Essentially photo electric side register control apparatus consists of scanning head containing a light source from which the light is projected onto the edge of the web or a printed guide line, in the form of a circle or as in one type, concentric circles.

The scanning head contains, in addition to the light source, the photo electric cell which is activated by the amount of light reflected from the web. The idea, of course, is to keep the web running true at a constant point underneath the photo electric cell or "eye." When the web is running true, it bisects the circle of reflected light. What the "eye" therefore "sees" is a circle, half of which is bright (because of light reflected from the web) and half of which is dark (because of absorption of light by dark rubber idler roll over which the web passes.)

Suppose, however, that because of an unevenly wound or "telescoped" roll, there is a tendency of the web to shift sidewise;—immediately there is a change in the proportion between the dark and light areas of the circle and reflected light, which is detected by the photo electric cell. As is well-known, the photo cell is light-sensitive, and changes its resistance depending on the intensity of the light it absorbs. This change in resistance sets up a voltage differential in regulator tubes which are electrically connected to the photo electric cell. The tubes, in turn, operate an auxiliary motor which shifts the entire mill roll sidewise to compensate for any uneven winding of the original roll. The photo-electric cell operates on a 60 cycle current, therefore, there are 120 voltage impulses a second available to correct off-register.

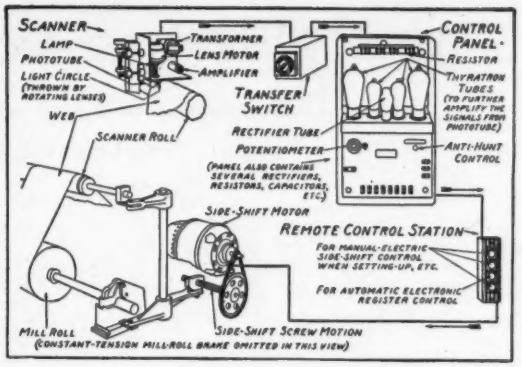


FIG. 5.
Rotary-Lens Type Electronic Side-Register Control as Fitted to Light Duty Air-Cooled Constant Tension.

The photo electric side register control is built in different types for use with slitting machines in paper waxing plants where speeds are up to 1,500 f.p.m. as well as for use on multi-color presses, coating machines, waxers and other roll-operated equipment which run at somewhat slower speeds.

In general, it can be said that the photo electric side register control will make full correction at the rate of 25 inches of side traverse a minute.

There is at least one instance on record of the use of a photo electric side register control in connection with a slitter handling a printed web where the control proved to be more accurate than the printing plates. This was determined by purposely leaving the register marks on the slit strip. In this particular case there were seven repetitions of the design around the printing cylinder.

It will be seen from the foregoing that side register control is the main benefit derived from the "electric eye" when used on web printing presses.

When the "electric eye" is applied to slitting and roll-winding machines the idea is to avoid trim waste by taking unevenly wound rolls and winding them into rolls with straight ends. When narrow strip is being slit this may mean the saving of one or more complete coils in a set. On expensive materials, in particular, this can run up into a considerable saving.

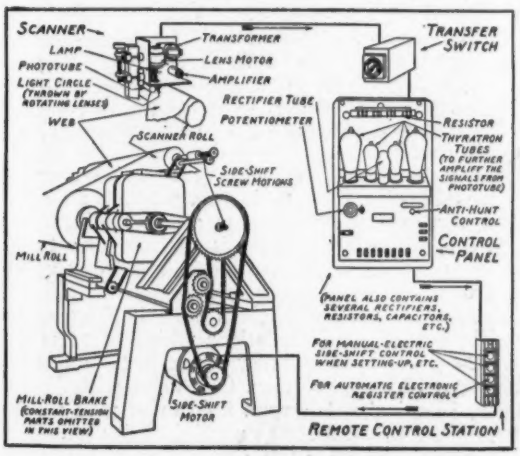


FIG. 4.
Rotary-Lens Type Electronic Side-Register Control as Fitted to Heavy-Duty Water-Cooled Constant Tension.

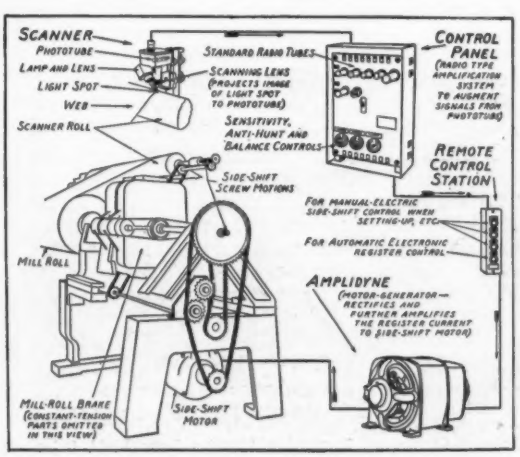

SCANNER
PHOTOTUBE
LAMP AND LENS
LIGHT SPOT
WEB
SCANNER ROLL
STANDARD RADIO TUBES
SCANNING LENS (PROJECTS IMAGE OF LIGHT SPOT TO PHOTOTUBE)
SENSITIVITY, ANTI-HUNT AND BALANCE CONTROLS
SIDE-SHIFT SCREW MOTIONS
MILL ROLL
MILL-ROLL BRAKE (CONSTANT-TENSION PARTS OMITTED IN THIS VIEW)
SIDE-SHIFT MOTOR
CONTROL PANEL (RADIO TYPE AMPLIFICATION SYSTEM TO AUGMENT SIGNALS FROM PHOTOTUBE)
REMOTE CONTROL STATION
FOR MANUAL-ELECTRIC SIDE-SHIFT CONTROL WHEN SETTING-UP, ETC.
FOR AUTOMATIC ELECTRONIC REGISTER CONTROL
AMPLIDYNE (MOTOR-GENERATOR—RECTIFIES AND FURTHER AMPLIFIES THE REGISTER CURRENT TO SIDE-SHIFT MOTOR)

FIG. 6.
Focusing-Lens Type Electronic Side-Register Control as Fitted to Heavy Duty Water-Cooled Constant Tension.

Fluid Drive in Canadian Paper Mills

A fluid drive of the scoop control type, similar in basic principle to the widely publicized automotive type, has been successfully applied by Sherbrooke Machineries Limited of Canada for speed control of the rotating screen cylinders of vacuum filters now functioning in seven Canadian paper mills.

The scoop control fluid drive, or hydraulic coupling, made by the American Blower Corporation, of Detroit, Mich., employs the simple basic principle of torque transmission through oil, without any mechanical connection between the driving and driven members. It has the radially vaned impeller (Fig. 1) which, when rotated at high speed, whirls the oil into the similarly vaned, concave runner, thus effecting a transfer of torque and rotation. The runner and impeller, with the enclosing cover, comprise the essential parts of the fluid drive.

A manifold and adjustable scoop tube, placed inside a rotating oil reservoir (Fig. 2) provide the simple means of variable speed control ideal for the vacuum filter application by Sherbrooke Machineries Limited.

These vacuum filters have a large screen cylinder which rotates in a tank of stock or pulp in water. One end, and in some cases each end of the cylinder is connected through a trunnion to a water leg about 25 feet long. This creates a suction on the inside of the screen, causing the water to be drawn in through the screen and the pulp to "mat" on the outside of the screen. The screen cylinder is made in segments and at the water outlet is fitted with a valve so that only the bottom half (the immersed portion of the cylinder) is under vacuum.

The mat is taken off the screen by means of a roll or "doctor," and drops into a trough, where it is carried away by a screw conveyor. Because the flow of stock varies considerably, and because it is necessary to hold proper vacuum, the rotating screen cylinder must be varied in speed. The scoop control fluid drive or hydraulic coupling provides the means for this variation of speed.

The position of the adjustable scoop tube which is mounted eccentrically on the stationary manifold (Fig. 1), and pivoted so that it can swing through an arc of about 70 degrees within the rotating oil retaining reservoir, determines the output speed. With the scoop tube in its "full dip" position, (Fig. 2) and held stationary, it picks up all of the oil in the outer casing, carries it through the cored opening of the

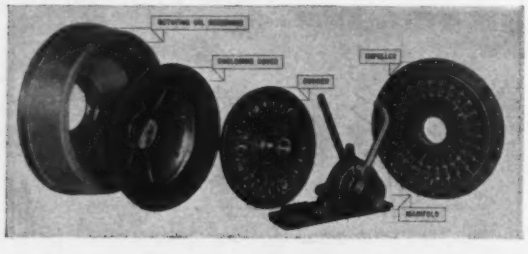


FIG. 1.

Essential Component Parts of a Traction Type Fluid Drive (Hydraulic Coupling), the Type Recently Incorporated in the Design of Vacuum Filters Used in the Paper Industry with Marked Success. The Scoop Tube, Eccentrically Mounted on the Manifold, Is the Distinguishing Feature of This Type of Fluid Drive, Which Provides for Variable Speed Control as Well as Shockless Starting and Running and the Absorption of Sudden Overloads.

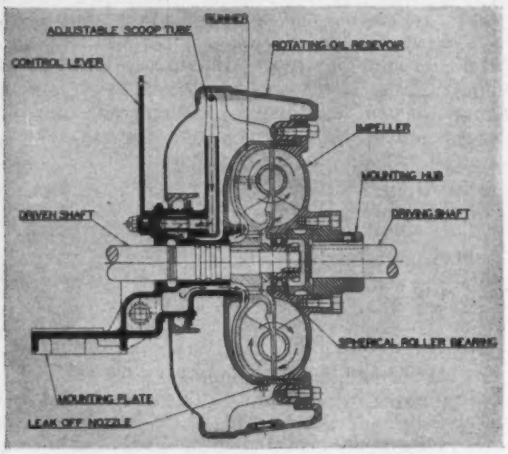


FIG. 2.

Cross-Section Diagram of a Scoop Control Type Fluid Drive. With the Adjustable Scoop Tube in "Full Dip" Position, as Shown, It Picks Up the Oil in the Outer Casing, Carries It through the Cored Openings of the Manifold and into the Working Circuit to Transmit Maximum Power and Speed. As Applied by Sherbrooke Machineries Limited on Vacuum Filters, a Float Valve in the Filter Tank Is Directly Linked with the Fluid Drive's Control Lever, Automatically Regulating the Ratio of the Driven Shaft Speed to Driven Speed, up to 3:1.

manifold and into the working circuit to transmit maximum power and speed. (Since oil is the medium through which the fluid drive transmits power, the maximum of power is delivered through the coupling when the working circuit is full.) With the scoop tube set in the fully retracted position, so that it carries no oil to the working circuit, the oil in the working circuit automatically empties into the reservoir and power transmission ceases. An infinite number of speed and power variations is obtainable by setting the scoop tube in intermediate positions between "full dip" and retracted.

Automatic regulation of the scoop tube position to control the fluid drive output speed to meet the varying speed requirements of the Sherbrooke vacuum filters is accomplished by means of a float valve in the tank of the filter. The float valve is directly linked with the scoop control arm of the fluid drive to provide automatic control.

With a fluid drive of proper size, a 3:1 ratio of speeds can be had easily, even though the machine which was originally thought to be constant torque is only constant torque until the speed has been reduced to approximately 50 per cent maximum speed. Under this point, the machine not only has a decided rising torque characteristic, but a definite fluctuating torque characteristic. This is entirely due to the variation in mat thickness, which is extremely pronounced at low operating speeds.

Fluid drives of the 12 inch size, 1140 rpm., are used in five of the installations with motors of 7½ hp. Other combinations now in use in these installations are: 12 inch, 860 rpm. fluid drive with 7½ hp. motor, 10½ inch, 1140 rpm. fluid drive with a 5 hp. motor; and 12 inch, 1140 rpm. fluid drive with a 10 hp. motor. The filter roll size is 6 x 12 feet in all except the installation using the 10 hp. motor, which is 8 x 16 feet.

Operators in the mills using these machines are

said to be enthusiastic about this application of the fluid drive. In addition to the speed control feature of the scoop control type, shockless starting and running are desirable features common to all fluid drives. The fluid drive permits a normal torque, constant speed electric motor to develop full torque before the driven load is engaged. Sudden overloads are absorbed by slippage within the fluid drive, and stalling or damage to either the motor or driven machine is prevented.

Fluid drives are made in four types—traction, scoop control, variable speed and marine—in sizes varying from 2 hp. to 36,000 hp. More than two million horsepower in the industrial field and more than two million installed horsepower in the field of marine propulsion are now being transmitted through fluid drive in all parts of the world. The rapidly broadening range of application is due to its great usefulness in solving countless engineering problems which involve difficult starting, shockless drive and acceleration, connection and disconnection of loads, protection against overloads, variable speed and the absorption of torsional vibration. It is used in connection with both electric motors and internal combustion engines.

To Hold Packaging Show at Chicago

The eleventh Packaging Exposition and Conference will be held at the Stevens Hotel, Chicago, April 1-4, inclusive, 1941, it is announced by the American Management Association, sponsoring organization for the annual event.

A change was made from the previous tentative dates in order to provide exhibitors with more time for the installation and dismantling of their exhibits.

Use of exhibition facilities in the Stevens Hotel, it is pointed out by the American Management Association, is in line with the expanding requirements of the Exposition, and reflects the preponderant opinion expressed at a recent meeting of the Exhibitors Advisory Committee of the Exposition.

The 1941 Exposition will represent the fourth Packaging Exposition held in Chicago under sponsorship of the American Management Association, the previous expositions having been held there in 1932, 1935 and 1938.

British Malaya Offers Paper Market

British Malaya offers a market for paper and paper products as indicated by imports amounting to $3,175,700 during 1938, and $2,397,895 during the first 11 months of 1939. China, Norway, Sweden, the United Kingdom, and the United States are the leading sources of imports for paper and paper products. Germany formerly was of considerable importance but trade with that country now, of course, is suspended.

Various control measures promulgated recently have prohibited importation in the case of one group of products except from countries within the sterling group, and in the case of a second group of products have restricted their importation except from sterling countries by requiring the importer to secure an import license, which license may be granted or withheld in the absolute discretion of the control authorities.

Paper Box Workers Strike

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 8, 1940—The strike of paper box workers which began on Tuesday, with five plants affected up to Friday, spread to four additional mills at this writing. Spokesmen for Local 286 of the Pulp, Sulphite and Paper Mill Workers, A. F. of L., said it might spread by nightfall to the remaining 14 plants of the 23 whose managements negotiated a blanket contract with the union.

The negotiations broke down over management refusals to grant a flat increase of five cents an hour in wages.. Representatives of the companies said such an increase would amount to 12 per cent in most classifications. And that, they insisted, would be prohibitive. Despite the fact that most of the 23 plants were closed for Independence Day week-end holiday, pickets were thrown around the newly struck mills, which were: Central Paper Box Company, 226 West Columbia avenue; Paragon Paper Box Company, 1136 North American street; Samuel Barnett Company, Mascher and Turner streets; and Progress Paper Box Manufacturing Company, Philip and Jefferson streets. Union leaders said more than 500 employes walked out from all nine struck mills.

With the Fourth of July holiday being observed by many producers of stock, such the printers, publishers, department stores, large office buildings and big corporations, and the close-down of local mills for virtually a half week, a rather spotty week accrued to the long suffering paper stock industry. While in the past few years there has been grim realization that the industry had to battle for existence, the activity that was registered the last few months and which was considered by many of the packers would presage a more definite advance toward permanent recovery, has suffered a setback.

Judge Crouch Rules for Dexter Co.

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., July 8, 1940—Supreme Court Leonard Crouch has announced a decision, unanimously affirming by the Appellate Division this week, in the suit brought some time ago by Mrs. Florence E. Campbell and Mrs. Alice M. Campbell against the officers, directors, creditors and voting trustees of the Dexter Sulphite Pulp and Paper Company. The plaintiffs as the respective widows of James E. Campbell and Clarence W. Campbell, former controlling stockholders of the company, sought to compel the officers, trustees and creditors to turn over to them control of the company and the stock which their husbands held. Judge Crouch ruled in favor of the defendants in a decision handed down in the fall of 1938. The decision held that the plaintiffs were not the owners of all but only half the shares of their husbands; that the voting trust of April 7, 1937 of the financially embarrassed company was valid and that Bernard Gray, president was in fact acting under an agreement or understanding with contemplated actual ownership of one-half of the stock by plaintiffs subject to the obligation to deposit it with the voting trustees.

Obituary

Edward B. Murray

MOUNT VERNON, N. Y., July 8—Edward B. Murray, former vice president of the Union Bag and Paper Company, with which he was associated from 1900 to 1930, died suddenly here on Monday of last week, presumably of a heart attack while sitting in the living room of his home at 37 Winfield avenue. He and his wife had just driven back from Quogue, L. I., where they had celebrated their fortieth wedding anniversary over the week-end at the summer home of their son, John Murray.

Mr. Murray, who was born in Chicago on September 16, 1869, came to New York in 1900. For the last ten years he had been president of the Port Royal Sales Company, sales agents for the Port Royal Pulp and Paper Company of St. Johns, N. B., and also president of the St. George Sales Company, sales agents for the St. George Pulp and Paper Company of St. George, N. B.

While with the Union Bag and Paper Company, Mr. Murray was largely responsible for the erection at Tacoma, Wash., of the first kraft pulp mill built for the market.

Mr. Murray belonged to the Siwanoy Country Club and was formerly, for twenty years, a member of the New York Athletic Club. In the World War he held the rank of captain in the intelligence service.

He leaves a widow, Kathleen G. Murray, two sons, John of Larchmont and Edward G. of Mount Vernon, and a sister, Mrs. W. C. Bates of White Water, Wis.

John Antrim Howard

John Antrim Howard, head of the paper and pulp firm of Atterbury Brothers, Inc., 110 E. 42d Street, New York City, with which he had been associated for 55 years, died Tuesday of last week in his home, 452—8th street, Brooklyn, N. Y. after an illness of two months. He was aged 72.

An ardent fisherman and nimrod, Mr. Howard was for forty years president of the Bergen Beach Gun Club. He also was a former president of the Metropolitan Trapshooters League.

Mr. Howard was born in Brooklyn August 21, 1867, and early in life moved to White Plains. Returning to Brooklyn in 1888, he had lived there ever since, most of the time in the house in which he died.

He joined the Atterbury firm in 1885 as shipping clerk and held the office of treasurer and credit manager before he became head of the concern ten years ago. He was interested in charitable affairs for many years.

He was a member of All Saints' P. E. Church, 7th Avenue and 7th Street, for 50 years and had served as vestryman and junior warden. Services will be held in the church at 10 a.m. Friday.

Surviving are his widow, Jean Beattie Howard, and twin sons, John and James Howard.

James L. Jones Dead

James L. Jones, paper manufacturer, first president and later street commissioner of the village of Eastwood, died July 5, at the home of a cousin, John D. Estes in Geneva, N. Y. He was 81 years old. Mr. Jones was born in Rochester and was engaged with his father, William Jones, in manufacturing paper in Chittenango twenty years prior to moving to Eastwood in 1893.

He was one of the first chief engineers of the Pierce Butler Radiator Corporation. Mr. Jones also was a real estate broker for about ten years.

Surviving are two sons, Earl F. and Fred W. of Syracuse, and two sisters, Mrs. William R. Jones of Ithaca and Mrs. Stanton Marshall of Fenner.

Hill Clutch Buys Acme Machinery

Companies founded by prominent Cleveland industrialists and active in the heavy manufacturing business for nearly 60 years, were merged this week with the purchase by the Hill Clutch Machine and Foundry Company of the assets of the Acme Machinery Company. The new corporation will be the Hill Acme Company, said A. C. McDaniel, president. Combined annual business of these companies exceeds $2,000,000 and working capital will exceed $1,000,000, it is said.

The Acme Machinery Company, founded in 1882 by the late Frederick W. Bruch, is operated by Karl F. Bruch, president, and Edward P. Bruch, secretary-treasurer, sons of the founder. The Acme organization will continue to operate as a division of the Hill Acme Company, as will the Cleveland Knife and Forge Company and the Canton Foundry and Machine Company, acquired by "Hill Clutch" within the past nine years.

The Hill Clutch Machine and Foundry Company was organized in 1886 by Harry Hill and the late Jacob B. Perkins, whose son, Ralph, is now chairman of the board.

The Hill Acme Company, 6400 Breakwater avenue, Cleveland, manufactures hydraulic precision surface grinders; plate, sheet and strip polishing machines, power transmission machinery, special machinery, and machine tool castings.

The Acme Machinery division at 4533 St. Clair avenue, Cleveland, manufactures upset forging machines, thread rolling and thread cutting machines, nut tapping machines, complete line of pipe coupling equipment including forgings, champfering and tapping, and bolt, nut and rivet machines.

The Canton Shear division manufactures all-steel alligator shears, portable floor cranes and industrial turntables.

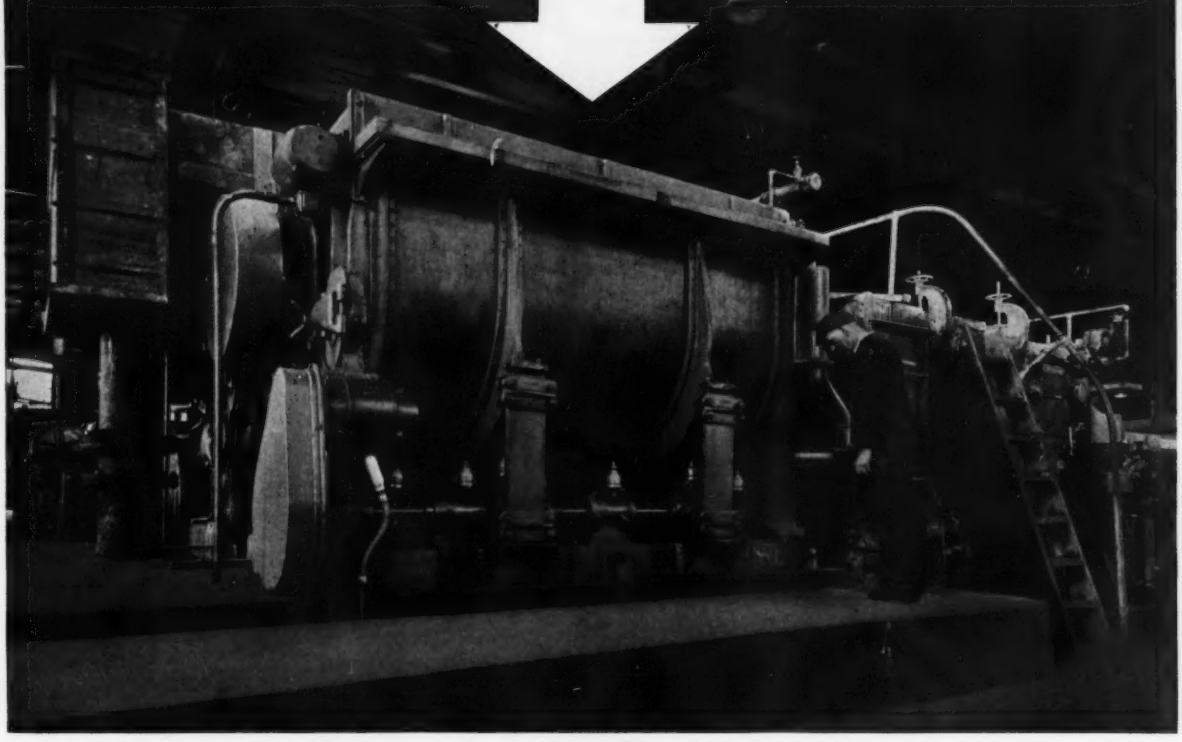
The officers of the Hill Acme Company are Ralph Perkins, chairman of the board; A. C. McDaniel, president; L. L. Hercik, vice-president and general manager; Karl F. Bruch, vice-president; M. G. Firestone, treasurer; and John R. Short, secretary.

Refuge for Children of Paper Makers

Llewellyn Thomas, acting secretary of the Papermakers' Association of Great Britain and Ireland, Great Northern Hotel, Reading, England, has cabled to R. G. Macdonald, secretary of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York, N. Y., as follows: "Executive Council of the Papermakers Association would like to contact you as to possibility of American paper making families receiving children of English paper making families during war time."

Any reader interested in assisting in this humanitarian proposal should get in touch with either R. G. Macdonald or direct with Mr. Thomas.

ARE YOUR SCREENS LIKE THIS?



OR ARE THEY LIKE THE OLD ONES THESE JUST REPLACED

Modern Bird Screens are capable of operating at full capacity and efficiency with the finest possible screen slots for your grade of stock . . . Replacing your old screens with screens like this will do more for your paper than anything else you can do at anything like as low cost . . . Ask us to prove it.

BIRD MACHINE COMPANY, SOUTH WALPOLE, MASS.

BIRD SCREENS

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending July 10, 1940

	High	Low	Last
A. P. W.	29¼	28¼	28¼
Armstrong Cork Co.	6⅞	6⅜	6¾
Celotex Corp.	51	51	51
Celotex Corp., pf.	4⅛	4⅛	4⅛
Certain-Teed Products Corp.	22⅜	19½	20¼
Certain-Teed Products Corp., pf.			
Champion Paper & Fibre Co.	100½	100	100
Champion Paper & Fibre Co., pf.	15¾	15	15½
Congoleum-Nairn Co.	12⅞	12¾	12¾
Container Corp. of America			
Continental-Diamond Fibre Co.	14¼	14	14
Crown-Zellerbach Co.	81	81	81
Crown-Zellerbach Co., pf.	13¼	12½	13
Flintkote Co.	2⅞	2¾	2¾
Robert Gair	12¾	12¾	12¾
Robert Gair, pf.	12⅞	12¼	12¾
International Paper & Power	48½	46½	47
International Paper & Power, pf.	57	54½	57
Johns-Manville Corp.	128	125½	128
Johns-Manville Corp., pf.	33½	33½	33½
Kimberly Clark Corp.	27	26⅞	26⅞
MacAndrews & Forbes			
MacAndrews & Forbes, pf.	25⅛	24¼	24¾
Masonite Corp.	9¼	9¼	9¼
Mead Corp.	70	69	70
Mead Corp., pf.	29⅞	29⅞	29⅞
Paraffine Companies, Inc.			
Paraffine Companies, Inc., pf.	15½	15⅛	15½
Rayonier, Inc.	28½	28	28½
Rayonier, Inc., pf.	15½	15⅛	15½
Ruberoid Co.	40	40	40
Scott Paper Co.	103	103	103
Scott Paper Co., pf.			
Sutherland Paper Co.	11	10½	10½
Union Bag & Paper Corp.	3½	3⅜	3½
United Paperboard Co.	57⅛	54½	57
U. S. Gypsum Co.	175	173¼	175
U. S. Gypsum Co., pf.			

New York Curb Exchange

High, Low and Last for Week Ending July 10, 1940

	High	Low	Last
American Box Board Co.	4½	4½	4½
Brown Co., pf.	16¼	15¼	16¼
Great Northern Paper	10¾	10½	10½
National Container Corp.	2⅝	2½	2½
St. Regis Paper Co.	3	3	3
St. Regis Paper Co., pf.			
Taggart Corp.			

May Restore Wage Cut at Dexter

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., July 8, 1940—A decision by Federal Judge Cooper this week grants the restoration by August 1 of the ten per cent wage cut to employees of the Dexter Sulphite, Pulp and Paper Company, if the mill profits warrant. The wage reduction was placed in effect in 1937. The court also granted the equity receivers the permission to make a new boiler installation in the Frontenac mill at a cost of about $18,000, borrowing the sum needed or issuing certificates to defray the expense. W. E. McIntyre and B. C. Foster are the receivers now supervising operations. Judge Cooper also allowed the company to cancel its account with the Richville Limestone Company, a defunct organization, by surrendering about $6,000 Limestone shares for a $2,773.91 debenture note of the sulphite company now held by the former concern. No opposition was offered by the company or creditors although all parties were represented. It was brought out that during the past year and up to May 1 the mills lost $50,000 but during early spring the business showed considerable profit. If this continues the wage cut will be restored, according to announcement. The court indicated that the mills must make a net profit of $3,200 in order to make a full restoration. If the net earnings equal only $1,600 then the restoration shall be only five per cent or in other words the revision will be in proportion to the net earnings. Although Judge Cooper provided that the restoration shall begin August 1, if business warrants, he said that it ought to start by early fall by the latest. Representatives of the union groups stated that they had worked fourteen months under the receivership at the old wage and that they went back to work with the understanding that the cut would be restored. The court agreed with them but asserted that if the mills showed a steady deficit instead of a profit it was possible that they might be thrown out of work entirely.

Rayonier Reduces Interest

Rayonier, Inc., has obtained new long-term bank loans of $6,500,000 and has paid previous term loans of the same amount, effecting a substantial interest saving, it was announced yesterday. The transaction was completed on July 3.

The new loans are payable in semi-annual installments of $500,000 each, commencing on Aug. 1, 1941, and running to Aug. 1, 1946, with a final payment of $1,000,000 due on Feb. 1, 1947. Interest at the rate of 2½ per cent applies on $3,000,000 of the loans, the amount maturing up to Feb. 1, 1944. The remaining $3,500,000 bears interest at the rate of 2¾ per cent. The loans which were paid carried interest rates of 3½ per cent and 4½ per cent.

Puget Sound Nets $498,477

Net income of the Puget Sound Pulp and Timber Company for the first five months of this year amounted to $498,477 after depreciation, depletion, amortization, Federal income taxes and other charges, according to the report issued yesterday.

After allowing for dividend requirements on 62,684 shares of 6 per cent preferred stock, the earnings are equal to $1.46 each on the 310,561 shares of common stock. No comparison is available.

For May the company reported a net profit of $105,039 after taxes and other deductions.

Start Paper Mill Near Bangkok

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 10, 1940—Government-owned paper mill at Kanchanaburi was in operation throughout 1939, according to a report from the American Consulate General, Bangkok. The factory is supposed to have a production capacity of 10 tons per day but it is doubtful whether capacity production was maintained as it is known that difficulty was experienced in obtaining sufficient quantities of raw materials and fuel. No production figures are available. The paper being produced is of inferior quality. The erection of a second factory is projected.

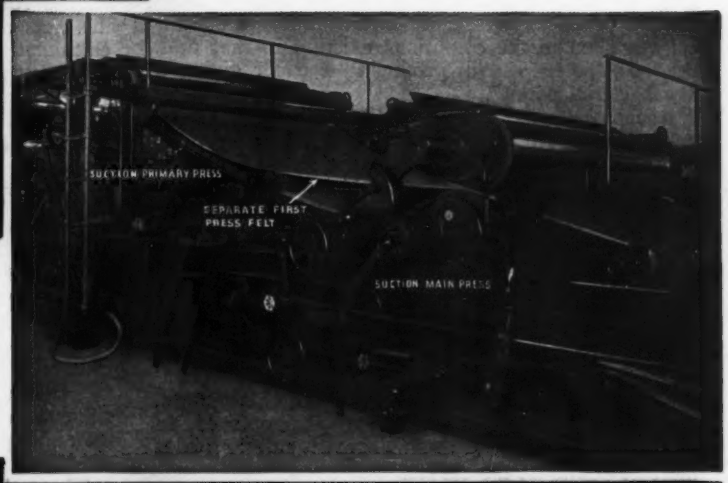
Sabin Robbins Votes Dividend

The Sabin Robbins Paper Company has declared dividends of $3 and $2 extra on common, payable July 24 to stock of record July 10. Previous dividend of $2 was paid on May 20.

Suctionize

YOUR BOARD MACHINE WITH Beloit SUCTION

DRUM PRESS *
PRIMARY PRESS
MAIN PRESS



Note the short top felt for suction drum press nip. All plain primaries have been removed.

Wet pickup felt returns after suction primary press. Suction first press is on separate felt.

1. Removes large quantity water without disturbing formation or finish.
2. Reduces crushing and checking.
3. Improves finish. Reduces felt marks.
4. Permits use of light weight short top felt. Lower felt cost.
5. Eliminates several nips. Improves test of board.
6. Permits more bulk if desired.
7. Increases test or permits cheaper furnish and maintain same test.
8. Suction main press more efficient on separate felt.

* Suction drum press is equivalent to suction drum and suction primary press.

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS.

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS, BELOIT, WIS.

Reprints on Microbiological Control

"Microbiological Control in Pulp and Paper Manufacture", a new 52-page illustrated booklet published by Wallace & Tiernan Company, Inc., Newark, N. J., assembles under one cover reprints on three phases of this increasingly important subject to paper mill operators.

The first reprint, having the same title as the cover, outlines recent developments in treatment with chlorine, chloramines and cuprachloramines. Of particular interest to mills manufacturing stock for food and milk containers is the discussion on "Break-Point Chlorination" the promising new treatment for taste and odor control.

Observations in the paper, "Promoting Satisfactory Bacteriological Conditions in the Paper Mill", are based on operations at the Oswego Falls Corporation and the Sealright Company, Fulton, N. Y. The authors outline methods and controls used by certain mills to permit the production of a paper with a low bacterial count, satisfactory to the public health authorities for use in food and milk containers.

Granting that each mill presents a specific problem, the authors nevertheless "believe that if these general practices are set up in any mill and specifically applied to the conditions existing in that mill, they will be helpful in producing a paper giving a low bacterial count".

Economies resulting from slime control in newsprint production are set forth by the authors of the paper, "Slime Control at the Ontario Paper Company Ltd." Full mill treatment with chloramine employed at this mill is illustrated by detailed flow sheets. Charts depicting the percentage reduction of total lost tonnage show that, once the proper control point is established and stabilized, the lost tonnage may be reduced as much as 60 per cent.

The booklet contains an unusually good collection of photomicrographs of common organisms found in paper mill systems. In order to bring out the comparative sterilizing efficiency of chlorine and chloramines, an interesting diagrammatic chart is employed, in which photographic reproductions of culture plates indicate points on the curves.

Copies of this booklet, Technical Reprint No. 472, may be obtained by writing Wallace & Tiernan Company, Inc., Newark, N. J.

Millar Celebrates 80th Year

The firm of Geo. W. Millar & Co., Inc., 284 Lafayette Street, New York, wholesale dealers in paper and paper mill supplies have just celebrated their 80th year in business. The firm was established by the late Geo. W. Millar and Wm. D. May, who were among the pioneers in the industry. The board of directors have declared an extra dividend of $3.00 per share in addition to the regular dividend for the fiscal year ending June 30, 1940, and have also authorized distribution of a bonus to employees from earnings, which was paid June 28, 1940. They also announce expansion of their file folder department, having just acquired the machinery and equipment for manufacture of same from the Stevens & Thompson Paper Company, who have discontinued manufacture of file folders.

The firm also announces that Harry C. Record, formerly with Stevens & Thompson Paper Company, has joined their forces for the distribution and direction of the manufacture of these products.

Pulpwood Indictment Unwarranted

The action of a Federal Grand Jury in New York in indicting the American Pulpwood Association was characterized as wholly unwarranted by H. E. Brinckerhoff, secretary of the association. Mr. Brinckerhoff stated that the association has as its primary purpose the fostering of good forestry conservation practice among its members. This helps avoid depletion of America's forests and will yield continuing cash crops of pulpwood for the multitude of woodland owners of the country, both large and small.

Members of the association are numerous small pulpwood operators, as well as several pulp mills, which are large users of pulpwood.

In addition to its primary purpose of fostering good forestry practice, Mr. Brinckerhoff stated that the association has acted as a Chamber of Commerce in advising and assisting its members concerning legislation affecting them. It is in this connecton only, said Mr. Brickerhoff, that the association has had anything to do with the Wage and Hour Act. It has advised its members of the provisions of the Act; has procured interpretations of the Act; has gotten rulings for its members from the Administrator of the Act; and has proposed amendments to the Act calculated to make it more practical—and that is all. The association has not been a party to any action whatsoever, the purpose of which was to violate the Wage and Hour Act, or in any way minimize compliance with it.

Avoiding Labor Disputes

How to use the "Round-Table" method in avoiding labor disputes was the subject of this month's conference at the Labor Relations Institute, New York, led by Dr. E. H. Van Delden of New York University. The Nation's Defense Program makes it more necessary than ever for employers to minimize industrial conflict, according to the views presented by Institute members. Since trade-unions have achieved recognition, present conflicts are no longer over the question of mere recognition, but move into management's sphere of policy determination.

The real challenge to management is whether it can "manage." To meet the challenge, employers must confer, not only with labor, but with fellow employers, in order to discover successful solutions. The Labor Relations Institute is an employers' cooperative group, organized to research labor problems. National Headquarters are in the General Motors Building, Broadway and 57th street, New York City.

Recognizing that labor questions are national, not local, the Institute works cooperatively with both union and management organizations as well as with individual concerns.

Its primary aim is the prevention of labor conflict, through education of both employer and employee to a fuller appreciation of the inter-dependence and intricacy of our industrial civilization. The disruptive cost of strikes in terms of money and suffering is deemed a disease which must be cured by intelligent effort. The semi-monthly deliberations at the Institute are reviewed by the Editorial Committee, and then transmitted to corresponding members by the Executive Secretary. Hugo E. Rogers is chairman of the membership committee, Roy F. Dunn on Labor Law, and Dr. E. H. Van Delden, counsellor on industrial relations at New York University, heads the advisory committee.

CONSTRUCTION NEWS

Dallas, Tex.—Fleming & Sons, 1116 East 12th street, manufacturers of paper specialties, have begun erection of new addition, to be used for increased production. It will be one-story and basement, estimated to cost over $30,000, with equipment. A building permit has been issued. James P. Baugh, 2908 North Fitzhugh street, Dallas, is architect.

Paterson, N. J.—Lobosco Brothers, 121 McBride avenue, waste paper products, have plans under way for new addition to storage and distributing plant, to be one-story and basement, about 70 x 80 feet, reported to cost close to $20,000, with equipment. Bids will be asked on general erection contract at early date. Joseph Bellomo, 277 Market street, Paterson, is architect.

Fort Worth, Tex.—The Container Corporation of America, Inc., 111 West Washington street, Chicago, Ill., manufacturer of corrugated boxes and containers, will soon begin operations in new branch plant at Fort Worth, where company has secured a large section of building of General Motors Corporation, 2601 West Seventh street, under long-term lease, as previously noted in these columns. Improvements are in progress, with installation of machinery and equipment for large output of corrugated containers of various kinds. Entire project will represent a reported investment of close to $200,000, the larger part being used for equipment purchases.

Sandusky, Ohio—The Sandusky Folding Box Corporation, 607 King street, manufacturer of folding boxes, cartons, etc., for food products and other service, has begun erection of new one-story and basement addition to plant, 60 x 120 feet, and will push to early completion. It will be equipped for increased capacity and is reported to cost approximately $40,000, with equipment. Herman Ziemke Company, Sandusky, has general erection contract.

Brownstown, Ind.—The Kieffer Paper Mills, Inc., Brownstown, near Ewing, manufacturer of corrugated board, wrapping paper stocks, etc., has superstructure in progress on new one-story addition, about 35 x 120 feet, to be used primarily for storage and distribution. Company also is rebuilding a one-story unit, 50 x 140 feet, for finishing mill. Entire project is reported to cost close to $50,000, and will be pushed to early completion.

Philadelphia, Pa.—The United States Gypsum Company, 56th street and Schuylkill avenue, manufacturer of wall board products, etc., has approved final plans for new one-story addition to local plant, previously referred to in these columns, and will place erection under way at once. Increased capacity will be carried out. Cost reported over $50,000, with equipment. Main offices of company are at 300 West Adams street, Chicago, Ill.

Thorold, Ont.—The Ontario Paper Company, Ltd., manufacturer of newsprint, has begun superstructure for new steam power house at local mill, about 43 x 53 feet, to be equipped for large increase in present power station capacity. It is reported to cost approximately $100,000, with boilers and auxiliary equipment. Completion is scheduled at early date.

Committee on Corrosion

The second annual meeting of the American Coordinating Committee on Corrosion was held on June 27, at Haddon-Hall Hotel, Atlantic City, N. J. Dr. F. N. Speller, of Pittsburgh, consultant on corrosion, was formally named Chairman for the coming year. Dr. R. N. Burns, of the Bell Telephone Laboratories, was named Vice-Chairman and Dr. G. H. Young, Mellon Institute of Industrial Research, Secretary-Treasurer. Committee headquarters are located at 4400 Fifth avenue, Pittsburgh, Pa.

The Committee was organized two years ago to coordinate research activities in this extremely important field, and is patterned after similar organizations in England, Holland, Belgium and other countries abroad. Cooperation has been promised by all the major companies and independent laboratories who are actively engaged in corrosion investigations.

The Committee is at present composed of official delegates from the American Chemical Society, the American Electroplaters Society, the American Foundryman's Association, the American Gas Association, The American Institute of Chemical Engineers, The American Institute of Electrical Engineers, The American Institute of Mining and Metallurgical Engineers, The American Society of Heating and Ventilating Engineers, The American Society of Mechanical Engineers, The American Society of Refrigerating Engineers, The American Society for Metals, The American Society for Testing Materials, the American Water Works Association, Battelle Memorial Institute, the Electrochemical Society, Mellon Institute of Industrial Research, The National Bureau of Standards, The National District Heating Association, the Society of Automotive Engineers and the Technical Association of the Pulp and Paper Industry.

At the meeting just passed, The American Welding Society, The Chemical Foundation, The Engineering Foundation and The National Research Council were also elected to membership.

Flex-Anal Charts for Piping

A book entitled "Design of Piping for Flexibility With Flex-Anal Charts" has been published by the Power Piping Division of the Blaw-Knox Company of Pittsburgh, Pa.

This work enables the experienced engineers and designers, after reading the text, to devote themselves entirely to the charts and thereby use the curves and the formulas shown on the chart sheets to arrive at the desired results in much less time than by the mathematical method or the grapho-analytical method for calculations involving stresses, forces, moments and deflections in one-, two-, and three-plane piping structures. The book consists of 44 pages of text, 36 pages of charts and formulas, and 10 pages of photomicrographs and other illustrations.

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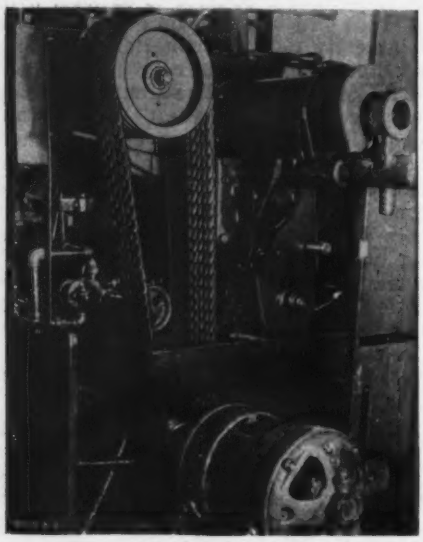
Insurance Against Belt Failures

Insurance against inconvenient failures can be had by guarding the belt against those forces tending to destroy it and, speed of replacement can be achieved by using a belt for those "hard-to-get-at" locations that can be installed without partially tearing down the machine. Such a belt, manufactured by Manheim Manufacturing and Belting Company, Manheim, Pa., is that shown in the accompanying illustration. It consists of short belt sections of V-belt cross-section which are fastened by buttoning the bottom of one end of a section to the top of the other end of another section.

Thus, a complete belt can be formed by joining together enough sections to provide the drive, and this belt can be removed or installed by simply unhooking or hooking any two sections.

This V-belt successfully solves the installation



An Application of the Neoprene Bound V-Belt

problem in locations where the belt is normally hard to install. And, too, these belts are available in neoprene-bound fabric styles. Thus even this easily installed belt doesn't have to be changed frequently as the neoprene sections will have long life despite the conditions of service.

The accompanying photograph illustrates one application where the neoprene bound V-belts have proved their ability to resist deterioration. The exacting requirements of this automatic screw machine necessitated the placing of the drive in a location where the belt is constantly exposed to cutting oils. In October 1938, the manufacturer installed a sectional belt made from neoprene-bound fabric. The belt is still on the machine after twenty-one months efficient service despite daily exposure to cutting oils. And, the belt is in such good condition that it will probably continue to do its job for many more months. Such neoprene-bound sectional fabric belts have set long service records in a number of different applications.

Such service records are becoming commonplace with this type of belt which, when made from neoprene, is insurance against early failure, and which, when it does eventually fail is extremely easy to replace.

New Precision Knife Grinder

The newly designed 100 inch Seybold Precision Knife Grinder, it is claimed, can soon save the cost of this new machine. It does not require an experienced operator, and it grinds equally well shear blades or beveled knives such as planer, chipper, hog, barker, veneer, paper, rag, granulating, tobacco, and scraper or doctor blades—in fact, almost all straight knives in general use.

A unique feature is a hollow three-sided knife bar, each surface presenting a different series of angles to the action of the traveling grinding wheel. A fourth open side makes it easy to bolt or clamp various types of blades to the bar. On the surface of the knife bar where most of the grinding of paper cutting knives is done, the stud-nut principle for fastening the clamps has ben retained. This gives a definite position for the clamps and permits uniform spacing.

The simplicity of this new machine was attained without eliminating any of the desirable features of the older Seybold Precision Knife Grinder. All gears and clutch operate in an oil bath, to insure quiet, trouble-free performance. Only the floor space occupied by the base is required for operating the grinder. Adjustments and controls are so simple and easy that the machine can be handled by any intelligent workman.

The new Knife Grinder is made in three standard sizes—70, 100 and 128 inch lengths—other sizes to order. Further information will be supplied by the manufacturer, the Seybold Division, Harris-Seybold-Potter Company, Dayton, Ohio.

McIntosh Paper Co. Make Exhibit

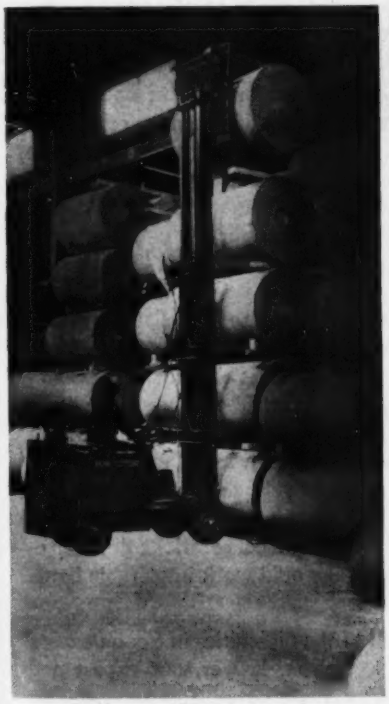
An exhibit at the recent Advertising Federation of America Convention that attracted unusual interest was the booth of the McIntosh Paper Company, paper merchants of Chicago. A new principle in fine paper merchandising was introduced in the showing of a portfolio entitled "Dummies That Talk" that not only sampled their papers, but also served as a guide for many new uses for the papers featured in their exhibit.

Britewell Offset, made by the Hopper Paper Company of Taylorville, Ill., was given the lead and was supported by a jumbo broadside on Sunray, the all-purpose paper.

The special edition of "Dummies That Talk" featuring the papers sold by the McIntosh Paper Company was published by the Selling through Advertising Clinic, 19 S. Wells street, Chicago, who issue a regular edition at $1.

Open Mill in East Java

WASHINGTON, D. C., July 3, 1940—New paper mill at Letjes in East Java was opened by the Director of Economic Affairs of the Netherlands Indies, recently, according to a report from the American Consulate General, Batavia. Published accounts of the opening of the mill stressed the difficulties connected with the manufacture of paper in the Netherlands Indies and called attention to the lack of suitable wood in adequate quantities, as well as troubles due to climatic conditions. These accounts would indicate that the new mill will rely solely on rice straw and to some extent sugar cane bagasse as raw material.



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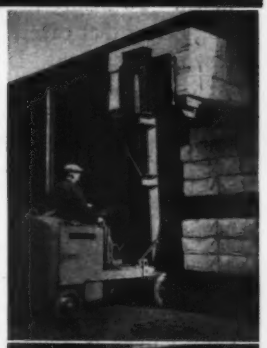

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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 111 July 11, 1940 No. 2

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

ARMAMENT AND TAXES

Although confusion is reported in Washington in connection with the national defense program, this state of mind is to be expected with the quick adoption of the largest American armament plan since the world conflict. The preliminary steps for a huge and costly project, in which the element of time is emphasized as of the utmost importance, have been promptly taken. To insure the success of the program it appears clear that careful preparation through a competent planning board is most essential. Granting that an emergency exists as the result of the European political situation, it is difficult to accept the request of the Roosevelt Administration that Congress approve at once a program aggregating $9,000,000,000. That much and very likely additional expenditures must be made to complete the whole defense program, but Congress has already appropriated $5,082,000,000 and it seems reasonable that Congress should know how the money already voted is to be spent before more money is appropriated. Vast sums have been hastily spent in the past by the Administration and common prudence suggests more competent planning is needed to provide adequate defense for American security without waste of public funds.

It has been pointed out that haste and doubtful judgment appears in the Revenue Act of 1940, which makes permanent increases in corporate and individual income taxes. It is designed to raise additional revenue of about one billion dollars yearly and increased the federal debt to $49,000,000,000. The new Act represents a heavy tax burden but the most objectionable feature of the Administration's plans to finance in part the cost of the defense program through taxation, is the recommendation of President Roosevelt to Congress for a "steeply graduated excess profits tax, to be applied to all individuals and all corporate organizations without discrimination." In commenting on this tax the July 1 issue of the *Washington Review,* published by the Chamber of Commerce of the United States, states in part: "The public should not be misled into the belief that a huge increase in revenue can be obtained by now applying a war-time excess profits tax to corporate income. Corporation profits at present, and for the last decade, have been subnormal rather than supernormal. About 60 per cent of the more than one-half million corporations filing income tax returns report no net income. There is no immediate prospect for any exceptional increase in business profits, even if those arising from national defense orders are included. The profits allowed on naval and aircraft contracts are strictly limited, and similar restrictions may be applied to other contracts for military purposes."

In commenting on the fact that profits from military orders are often illusory, the *Review* says, "Profits arising from military orders, as many have learned from sad experience, are likely to be highly illusory. The heavy capital losses which must be written off after the cessation of such orders and the expense incident to a change from production of munitions to ordinary routine, intensified by the rupture of peacetime trade channels, are likely to equal or exceed any apparent profits made from production of material designed for military use."

"Not only does an excess profits tax operate inequitably as to taxpayers, but, if based on relation of profits to invested capital, is generally admitted to be practically impossible of satisfactory administration. Cases arising as the result of a similiar tax during the world conflict, twenty years or more ago, are still pending before the Bureau of Internal Revenue or in the courts. It is conceded that it is impossible for the government to determine the invested capital of more than 500,000 corporations. Since this type of excess profits tax has proven so difficult of administration, attention has been turned to other methods of determining a base for the tax. Prominent among these is the proposal to use as a base the average annual earnings over a relatively short period of time, say the last three or four years. Due to the low earnings or actual deficits of corporations during recent years, this proposal would work intolerable hardship."

In an explanation of the difficulties in tax on excess profits, Godfrey N. Nelson, lawyer, tax expert and secretary of The New York Times Company, clearly pointed out the inadvisability of adopting such a levy at this time, saying in part: "A 'graduated excess-profits tax' has been recommended. But any such tax

imposed at graduated rates necessitates in every case the determination of invested capital or capital employed, whereas a levy of a fixed percentage of the 'excess,' as for example the English tax, could be calculated without considering the element of capital investment. This presupposes, of course, that the taxpayer had 'standard profits' for the prescribed period, called 'pre-war experience' under the War Excess-Profits Tax. Regardless of how the tax is imposed, however, if the taxpayer has no 'standard profits,' the capital investment must be ascertained for the taxable year. The same is true if the taxpayer had sustained net losses or had subnormal earnings during the stipulated period. Likewise a newly organized enterprise would have no such experience from which to determine a credit for 'normal earnings.' Increases or decreases in capital investment would necessitate the calculation of capital employed."

In pointing out the effects of an excess-profits tax, Mr. Nelson said that, "Unless business operates under an artificial impetus, as in wartime, the tax is liable to have a restrictive and harmful influence upon business generally. It is likely to generate inflationary tendencies and to cause wasteful expenditures of profits. This it did during the World Conflict and for three years thereafter, and its repeal no doubt contributed to the drastic commodity deflation which followed . . . It is admitted that the excess profits tax has vast potential revenue producing qualities. But only war itself would justify our assumption of its unavoidable administrative inequalities."

Set Up Div. of Commercial Treaties

WASHINGTON, D. C., July 10, 1940—State Department has set up a Division of Commercial Treaties and Agreements to have general charge of the formulation, negotiation, and administration of all commercial treaties and agreements having to do with the international commercial relations of the United States and will cooperate in the formulation of international commercial policy. The new division will have general responsibility for the Department's correspondence and contacts with American export and import interests, with our representatives abroad, and with representatives of foreign governments in this country with regard to the negotiation, interpretation and enforcement of the terms of commercial treaties and agreements and problems arising in connection with the importation and exportation of goods.

In carrying out these functions, the Division of Commercial Treaties and Agreements will have the responsibility of enlisting the collaboration of other interested divisions and offices of the Department, particularly those charged with functions involving the formulation of policies, and will maintain effective liaison with other interested departments and agencies of the Government.

Harry C. Hawkins has been designated Chief of the Division and Henry L. Deimel, Jr., and William A. Fowler have been designated Assistant Chiefs.

The Division will function under the supervision of the Assistant Secretary of State.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	83.9%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.3%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	91.7%	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	94.7%	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average.	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 26 weeks	88.9%	81.1%	67.6%	90.0%	78.7%	69.5%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
May 25	94.1%	May 27	79.9%
June 1	90.0%	June 3	74.2%
June 8	93.6%	June 10	79.3%
June 15	94.7%	June 17	79.0%
June 22	95.9%	June 24	79.2%
*June 29	94.5%	July 1	81.2%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	May 25, 1940	June 1, 1940	June 8, 1940	June 15, 1940	June 22, 1940	June 29, 1940
0% to 50%	41	58	36	38	37	26
51% to 100%	256	234	251	244	241	187
Total Mills Reporting	297	292	287	282	278	213

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	76%	79%	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	....	....	....	....	....	....

Week end. May 25, 1940—79%
Week end. June 1, 1940—75%
Week end. June 8, 1940—77%
Week end. June 15, 1940—79%
Week end. June 22, 1940—79%
Week end. June 29, 1940—80%

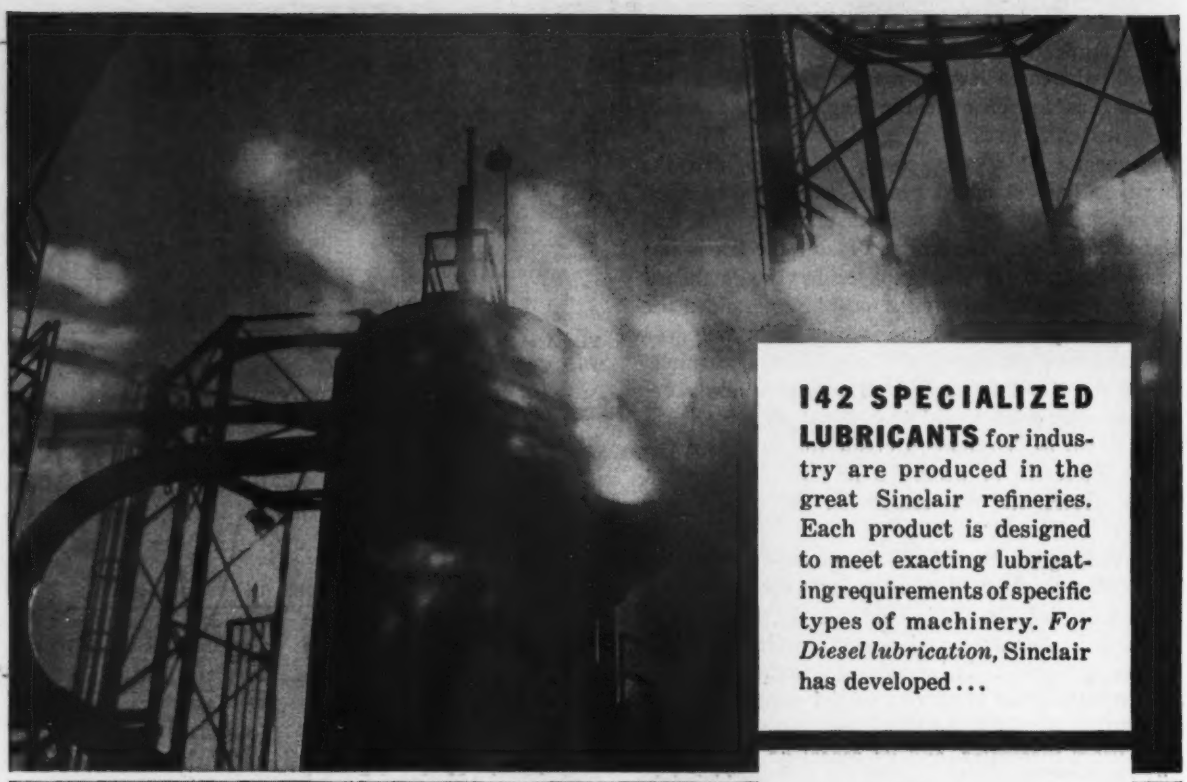
[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

* Preliminary figure.

Treatise on Sulphur

A booklet entitled "Sulphur, an essential to industry and agriculture," has just been published by the Texas Gulf Sulphur Company. This publication will be of interest to teachers and students as well as to specialists in the pulp and paper and other industries. The contents of the 45-page booklet presents a readable account of the history and occurrence of sulphur and its production in Italy, Japan, Chile and the United States. Economic considerations and the commercial forms of sulphur are also covered. Other chapters discuss the uses of sulphur and its analysis. An appendix presents important physico-chemical properties of sulphur and a select index to the literature of sulphur is a useful addition to the text.

A copy of this booklet may be obtained, without charge, from the Texas Gulf Sulphur Company, 75 East 45th street, New York.



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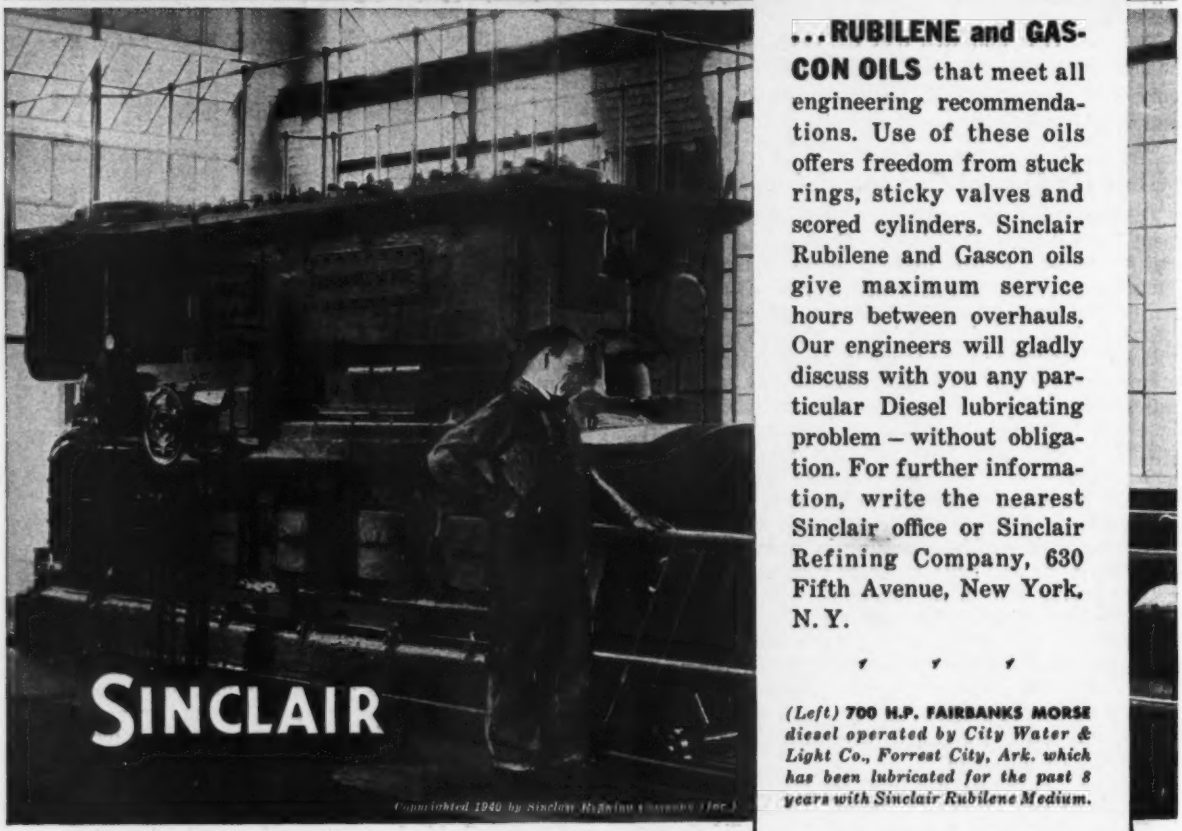

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* * *

(Left) **700 H.P. FAIRBANKS MORSE** *diesel operated by City Water & Light Co., Forrest City, Ark. which has been lubricated for the past 8 years with Sinclair Rubilene Medium.*

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Evaluation of Strength Characteristics Of Corrugated Boxes*

By D. M. Hawley[1]

Abstract

The effective strength of a corrugated shipping container is determined by many factors rather than just one, therefore, the measurement of any single strength factor of the container cannot logically be used as a criterion of box strength. The function of a container is to protect its contents under any of the varied stress conditions it may reasonably be expected to encounter under actual shipping and storage conditions. A shipping container must be able to resist deflection, end to end compression loads, shock loads, and be resistant to moisture, puncture, and abrasion.

Introduction

We are living in an age of rapid technical development. On every side we see the attainments of research and engineering and are impressed with the infallibility of scientific methods. For this reason we are usually impressed by any method of testing corrugated board or boxes which appears to be a sound engineering method of approach, and sometimes fail to appreciate its limitations.

We should realize that unless the testing method simulates conditions equivalent to those the box actually encounters in service, and takes into consideration all of the essential factors of box strength, it is very likely to be misleading rather than of actual value. The effective strength of a corrugated shipping container is determined by many factors rather than just one, therefore, the measurement of any single strength factor of the container cannot logically be used as the criterion of box strength.

Methods for measuring individually the various strength factors of corrugated board which in their proper proportion contribute toward the effective strength of the corrugated container, are of great value to the corrugated board manufacturer as a means of control. However, no one factor of strength should be so overemphasized that others just as essential are sacrificed.

Container Strength Factors

The function of a shipping container is to protect its contents under any of the varied stress conditions it may reasonably be expected to encounter under actual shipping and storage conditions. The various strength factors of the container should be, therefore, so proportioned that it will fulfill this requirement to the most effective degree.

A satisfactory shipping container must be able to resist with a minimum amount of deflection any anticipated top to bottom or end to end compression loads such as might be encountered in stacking during shipment or storage. It must be able to withstand with an adequate factor of safety any shock loads due to jolting during shipment or to being dropped or otherwise knocked around in handling. It also must have a reasonable resistance to puncture and abrasion.

What Constitutes Effective Strength

In order to correctly evaluate the merit of a corrugated box as a shipping container serious consideration must be given as to just what constitutes its effective strength.

It is not unusual for corrugated shipping containers to encounter humidity conditions of from 30 to 90 per cent relative humidity during shipment and storage. Therefore, a container must be capable of protecting its contents throughout this range of humidity conditions.

Because of the great extent to which the strength characteristics of paper materials are influenced by differences in atmospheric conditions, the effective strength of a corrugated box is only that which the box shows under the most adverse conditions of humidity it is likely to encounter in service. A box which gives a superior degree of protection to its contents under adverse conditions will have a more adequate factor of safety under more ideal conditions. Therefore, in order to determine the true value of a corrugated shipping container, the testing of its various essential strength characteristics should be done under such conditions of temperature and relative humidity as are most adverse to the particular strength characteristic being tested.

It is a well known fact that such requisite strength characteristics of corrugated boxes as are determined by the compression test and the revolving drum test, do not run hand in hand throughout the range of relative humidity conditions commonly encountered

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Director of Research, Stein, Hall Manufacturing Co., Chicago, Ill.

by corrugated shipping containers. Figure 1 shows a marked decrease in compression strength takes place with an increase in relative humidity. It also shows that in the case of the revolving drum test the ability to withstand rupture is greatest at about 76 per cent relative humidity and is lowest at the lower humidity conditions. In view of these facts it is apparent that while the testing of corrugated boxes at a common standard of relative humidity conditions is of great value as a means of comparing boxes of similar construction, it cannot be considered as a reliable testing means to determine the actual value of the box as a shipping container. Furthermore, such testing under a common standard of humidity conditions cannot safely be used as a means of comparing the relative actual merit of corrugated shipping containers that are of dissimilar construction or which are fabricated with dissimilar paper or adhesive materials.

Old Axiom May Be Applied

The old axiom to the effect that a chain is no stronger than its weakest link may logically be applied to shipping containers. The effective resistance of a corrugated box to compression loads is that which it shows under relative humidity conditions of around 85 to 90 per cent rather than that shown at the usual testing conditions of 40 to 65 per cent. If the true value of the box from the standpoint of resistance to shock load and rough handling is to be determined, the revolving drum test should be made under relative humidity conditions of 30 to 35 per cent.

A further consideration in evaluating the merits of corrugated shipping containers is the degree to which the desirable characteristic of rigidity is balanced with the just as essential characteristic of resistance to rupture under conditions of rough handling or shock load. A shipping container should have the qualities of rigidity without brittleness and toughness without limpness. The importance of balanced strength characteristics in a corrugated box is apparent when extreme examples of unbalanced strength characteristics are considered.

A box fabricated of plate glass would show up very well under the compression test, thus indicating its ability to withstand static compression loads. It would not, however, stand up in the revolving drum test due to its inability to withstand sudden shock loads. In contrast, a box fabricated of burlap or canvas would show up well in the revolving drum test indicating a superior ability to resist rupture due to shock loads but would be insufficiently rigid to offer effective resistance to static compression loads.

A Matter of Debate

It is a matter of debate as to whether the quality of rigidity or the quality of toughness is of the greatest degree of importance in a corrugated shipping container. Unquestionably, however, both of these qualities are essential and the most satisfactory shipping container is one that has both of these qualities to the most effective degree. We know how the strength characteristics of corrugated boxes vary with changes in humidity; it is obvious, therefore, that if a box is to be considered as well balanced from the standpoint of rigidity as well as toughness it should show an ample factor of safety under the compression test at high humidities as well as showing ample resistance to rupture in the revolving drum test under low humidity.

A corrugated box for example that shows a very high compression strength under relative humidity conditions of 40 to 50 per cent but which does not have an ample degree of compression strength at high humidities or ample resistance to rupture under low humidity conditions is not a well balanced box from the standpoint of effective strength. It is essentially a fair weather box and as such can only be depended on to protect its contents under fair weather conditions. On the other hand, a box which has an adequate factor of strength to protect its contents under adverse humidity conditions will effectively protect its contents under all conditions.

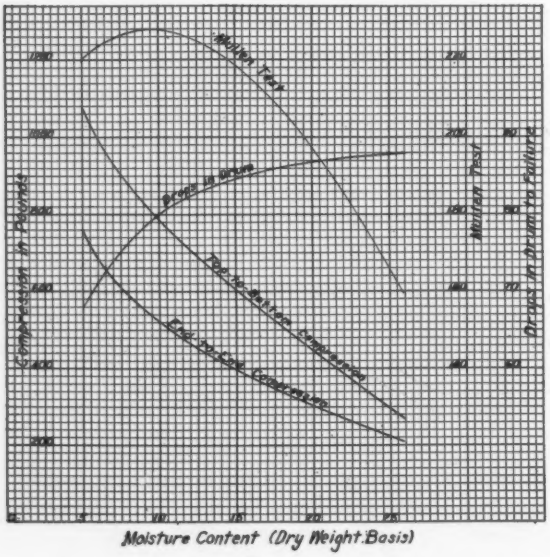

FIG. 1.

Effect of Moisture Content on No. 2 Canned Goods Cases Made With 2—.016 in. Dry Finish Fourdrinier Kraft Facings and .009 in. Kraft A-Flute Corrugations. Tests No. 2250-2335-2450. Container Testing Laboratories, Inc., February, 1940

Start Course in Lithography

The Third Intensive Course in the Fundamentals of Lithography sponsored by the Lithographic Technical Foundation started its opening session at 9 A. M. on July 1 at the New York Trade School.

Fifteen men, representing the following sections of the continent, are in attendance: 1—San Francisco, Cal.; 2—London, Ontario, Canada; 1—Montreal, Quebec, Canada; 1—San Jose, Costa Rica; 2—Baltimore, Md.; 1—Randolph, Mass.; 1—St Louis, Mo.; 3—New York, N. Y.; 1—Hamilton, Ohio; 1—Providence, R. I.; 1—Piedmont, W. Va.

For nine weeks these chemical engineering graduates will give their full time to a study of both the practical and the technical features of photography as applied to lithography, of color correcting, of plate making, of stripping and of offset press work. Class instruction in the excellently equipped trade school will be supplemented by visits to selected lithographing, paper, ink and equipment manufacturing plants. Lectures by technical men from related industries, such as ink, paper, blanket, photographic supplies, constitute an important part of the picture. An outstanding feature of the course is the series of technical lectures by Professor Paul W. Dorst of the research department.

Consistency Regulators*

By Frederick Wierk[1]

Abstract

A search of the literature was made of the principles involved in the equipment now in use for the regulation and control of the weight of paper made on the paper machine. Some of the factors which tend to limit the use of some devices as designed are discussed.

Regulation of the weight of paper, as made on the paper machine, calls for some device or combination of apparatus which will pass to the paper machine the desired dry weight of material at a rate corresponding to the prevailing machine speed. If a paper machine could produce a sheet from a constant feed of dry materials, the problem of regulating the rate of feed of those dry materials might be solved with comparative simplicity.

The constituents of paper, however, must be fed to the machine in aqueous suspension, and any regulatory measures must be applied to the stock in water suspension. Since the specific gravity of the suspended particles is almost the same as that of the water, no direct control by any actual weighing device is possible, and other properties of the suspension must be utilized to selectively operate any regulatory mechanism.

Basic Principle

A search of the literature fails to reveal the identity of the genius who first discovered the fact that the viscosity of a suspension of a given type of fibers in water might vary in some way with the percentage of those fibers in the suspension. With this fact established it became comparatively simple to use the viscosity of the suspension as a control point for the corrective regulation of the consistency of the suspension.

In respect to the operation of any regulator, the question as to the exact variation of the viscosity of the suspension with corresponding variation in the consistency is not at all mathematically important as may be noted from a consideration of a viscosity *vs.* consistency curve, from which it can easily be seen that the maintenance of a given viscosity will involve a corresponding consistency regardless of whether the relationship is a straight line curve or one which may be either convex or concave. As long as the nature of the suspended fibers is not materially changed, the use of viscosity as a control point will result in the maintenance of the desired consistency of the suspension.

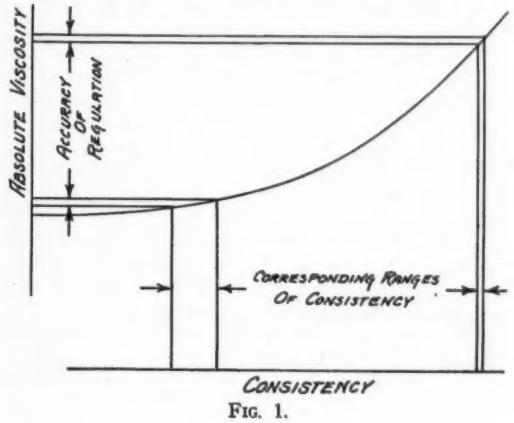

FIG. 1.

Limits of Usefulness

The usefulness of any apparatus based upon the relation between the consistency and the viscosity of paper stock is naturally limited to the range in which the viscosity *vs.* consistency curve may show a considerable slope. Referring to Fig. 1 you will note that, at the lower consistency, the curve is quite flat and a given change in viscosity is related to a much greater change in consistency than a similar change in viscosity at higher consistencies.

An Important Consideration

Figure 1 also brings out a very important consideration which should be very valuable to operators desiring to secure the best results with any type of regulator. A given accuracy of regulation, as provided by the apparatus, will show a narrower range of maintained consistency, if the regulation is handled at higher consistency. This difference is even more pronounced, if it is considered as a percentage regulation, because the large variation divided by the related low consistency will show a much higher percentage of variation than the small range divided by the higher consistency. This is particularly noticeable in the case of slow, heavily worked stocks, such as glassine and the like, in respect to which it can thus be shown that regulation at higher consistency is to be preferred in the interest of accuracy of consistency regulation.

With the exception of optical methods which have been applied to suspensions of very low consistency, and which will be discussed later, the determination, in one way or another, of the viscosity of the suspension is the basis of operation of all the practical consistency regulators which have been developed.

Having correctively regulated the consistency of the suspension, we will have fixed the weight of solids per gallon in the suspension, and the problem of then delivering the suspended materials at a given rate resolves itself to the relatively simple problem of controlling the rate of flow of the suspension which has previously been corrected in respect to consistency.

Desirable Features

If we properly consider the problem of weight regulation as involving the separate and successive problems of consistency regulation followed by quantity regulation, we may proceed to set forth the attributes which should be possessed by any combination of mechanisms calculated to produce the desired results. Since the supply of stock may con-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Member TAPPI, Johnson & Wierk Inc., New York, N. Y.

ceivably be stratified or in other ways not entirely uniform, it might be preferred to have any regulatory device handle all of the stock flow which is to be regulated rather than simply a sample thereof.

Since this regulatory function is to be continuous, there should be a minimum time lag (or detention) between the introduction of the dilution water and the point at which the viscosity determination is made. At the same time, however, there must be at least sufficient time, and in some cases definite mechanical agitation, to insure that the suspension is thoroughly mixed between the time the dilution water is added and the viscosity determination effected.

Should Involve Minimum of Mechanical Friction

The mechanisms connecting the device for determining viscosity with the valve for supplying dilution water should involve a minimum of mechanical friction, and it is obviously desirable that there be no points in any mechanical system which might require frequent lubrication for maintenance of proper mechanical action. Also in the interest of accuracy the device which determines the viscosity should not be expected to supply the energy necessary to operate the dilution valve.

The device which determines the viscosity of the suspension should be so designed and installed as to instantly detect any change in the viscosity at the control point.

The portion of the apparatus which detects changes in viscosity should have sufficient range of detecting ability in order to take care of the widest possible range of regulation without sacrifice of accuracy. This qualification is counter to the accuracy qualification, if the accuracy of the detecting mechanism should prove to be a matter of percentage of total range; a reasonable balance between accuracy and range should be incorporated in any device which is to be practical. The design of the viscosity detection apparatus should be such that its accuracy will not be affected by changes in the velocity of the stock passing the detection device. This qualification does not, of course, apply to those devices which use a "loaded flap".

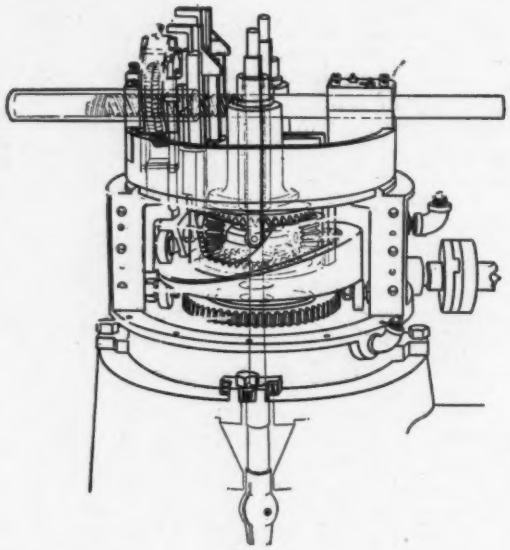

FIG. 2.

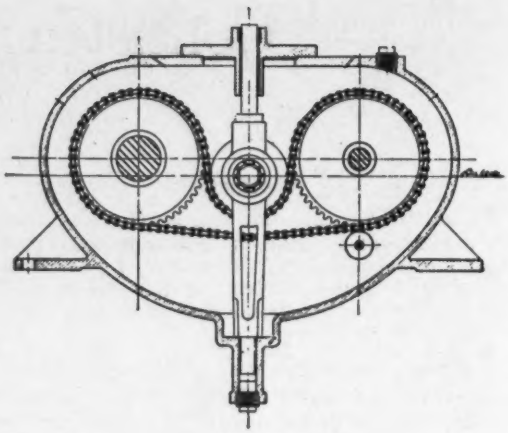

FIG. 3.

Mechanical Viscosity Determination

The mechanical determination of stock viscosity in consistency regulators is accomplished by a variety of devices generally described as "feelers", which may take the form of smooth cylinders, paddles, modified propellers, and the like. In most applications these feelers are revolved in the stock at a constant speed, and any variation in the viscosity of the stock is indicated as a corresponding variation in the torque required to turn the feeler at that constant speed.

The method of measuring the torque applied to feeler varies considerably in different machines which use the feeler device. The measuring mechanism is essentially a dynamonmeter of one form or another. In one regulator a beveled gear differential (Fig. 2) is somewhat similar to the rearend of the conventional automobile. Another regulator dynamonmeter uses an idler sprocket with 180 deg. wrap of the tight side of the driving chain between the driving motor gear and a gear which drives the feeler shown in Fig. 3.

In another regulator the torque required to drive the feeler is measured as the power taken by the constant speed motor which drives the feeler (Fig. 4). Another variation of the mechanical determination of viscosity, in which the feeler is driven at constant speed, is a torque pendulum arrangement by which the variations in the viscosity of the stock impart more or less swing to a torque pendulum on which the driving motor is mounted, as shown in Fig. 5. From any application of any of these arrangements any extraneous factors which might invalidate the viscosity determination should be eliminated. For example, the torque pendulum mounting should involve little or no friction or the mounting will not respond to slight changes. If ball bearings are employed in such a mounting, they should be lubricated with an oil of extremely low viscosity rather than the heavier greases which are sometimes employed for the lubrication of antifriction bearings.

As another example of extraneous factors which might invalidate the determination of torque by a rotating feeler, we cite one machine in which the feeler is a modified helix. Although the variation in torque due to viscosity changes would be considerable, the changes in the velocity of the stock in the sampling box would also cause a variation in torque

independent for the viscosity changes which the apparatus was intended to detect.

Almost every commercial device which we have studied will show at least one or more factors which tend to invalidate the accuracy of the viscosity determination. These invalidating factors vary in nature and magnitude of effect, and many of the machines on the market do a creditable job of regulation in spite of inherent weaknesses.

Hydraulic Viscosity Determination

In discussing this paper with a number of men who are more or less expert as pulp and paper technologists, we were astonished to find that they harbored a variety of ideas as to what *viscosity*, as such, may be. Wherever we refer to the viscosity of a paper stock suspension, we actually refer to the *absolute viscosity* of the suspension as a whole. Used in this sense the term refers to a measure of the internal fluid friction, and is most simply described as the coefficient of friction which appears in Poiseuille's law of fluid flow. Each fluid has a definite viscosity at a given temperature, and the absolute viscosity of fluids varies with temperature. The fact that a fluid carries solid particles in suspension does not alter the validity of Poiseuille's law, although the increase in the friction coefficient is brought about by the presence of the suspended particles.

For this reason it is apparent that hydraulic means may also be employed to determine the viscosity of stock suspensions. The device employed may take the form of a friction cylinder, a viscosity tube, or in some cases a relatively simple sluice. Variation of the viscosity of the stock will result in variation in head when a constant quantity is passed through the device.

May Involve Extraneous Factors

These hydraulic methods may involve extraneous factors which might considerably invalidate the viscosity determination. For example, for the head as displayed by stock passing through a friction cylinder, the quantity should theoretically be constant. Actually it is almost impossible to develop constant flow through such a device and the head appears as a second approximation, where the accuracy depends upon the fact that an allegedly regulated flow of the stock is taken from a preceding head box to supply the viscosity cylinder.

In these regulators employing hydraulic determination of viscosity, the head variations are measured by floats, by air pressure in a bubbling pipe, by the actual weight of the friction cylinder, or by the action of the stock on a loaded flap in a discharge sluice.

The head determination by floats may be subject

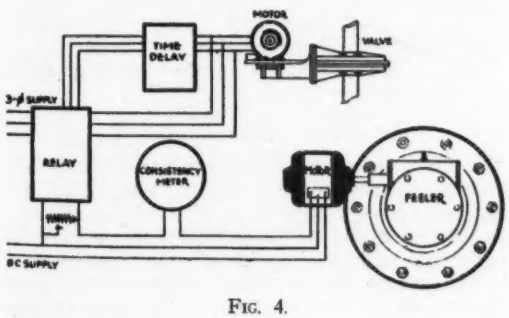

FIG. 4.

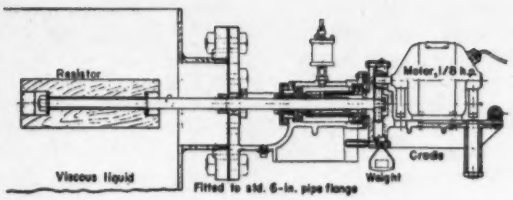

FIG. 5.

to an error introduced by friction in the mechanism, through which the float indication is transmitted to the controlling mechanism. The float determination of head will obviously be invalidated, if the float is employed to deliver any force to the controlling mechanism.

The air pressure in a bubbling pipe for measuring head is not in itself subject to any error, but the magnitude of the quantities involved may be so small that accurate utilization of that pressure variation may call for several successive pilot controls.

The use of the actual weight of a friction cylinder as a measure of head may involve some error if the stock enters the cylinder with any considerable impact and also if the scale-beam mounting involves friction.

The use of a loaded flap for viscosity determination may involve errors related to friction in bearings, stuffing boxes, linkage, and the like.

Stock Dilution

After the regulator has determined the viscosity of the stock with sufficient accuracy, the device must add the proper amount of water to bring the stock down to the desired viscosity. None of these devices has yet been developed to increase consistency and the problem is always that of bringing the consistency down to a desired point.

The outstanding attributes which must be possessed by the dilution system are minimum time lag between determination and correction, and minimum tolerance in respect to variation allowed in final viscosity as delivered. Minimum or zero, if possible, hunting should be permitted.

In any regulator the method of operation of the dilution valve is a most important feature to consider. Referring to the mechanical type regulators, the mechanism, regardless of type, by which the viscosity is determined should not be expected to provide the force required to operate the valve regardless of how thoroughly balanced the valve may be or alleged to be. The connection between the mechanical type regulator and the dilution valve should be through some form of selective mechanism which uses energy

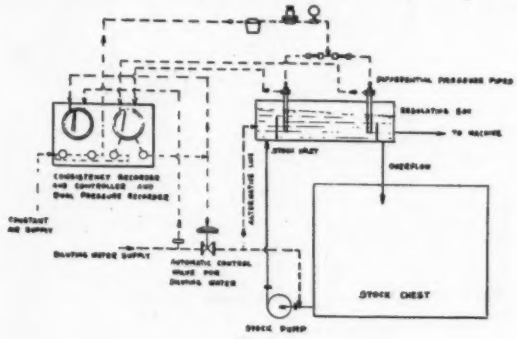

FIG. 6.

from some other source to operate the valve according to the dictates of the viscosity determination.

For example, one of the instruments which employs a bevel gear differential for determination of torque on a feeler uses an arrangement of cams, pawls, and ratchets to turn a screw arrangement directly connected to the stem of a closely adjacent dilution valve. In this application the motor which drives the feeler has sufficient power to operate both the feeler and the valve without involving any reduction of speed at the feeler when the valve has to be operated. In this case the feeler is driven through the differential while the valve is actually operated by energy obtained directly from the motor ahead of the differential gear.

Some years ago the regulator which uses an idler having a 180 deg. wrap of the tight side of the chain driving the feeler had this idler directly connected to a double-ported, balanced dilution valve, and the control point was established by adjustable back-and-forth springs on the valve stem. In this case actual variation in torque on the feeler was expected to produce corresponding variation in the opening of the dilution valve, and it is interesting to note that the vendors of that machine are now selling an entirely different device. This arrangement will, however, work better if the idler is used only to operate a pilot.

One regulator employing a torque pendulum scheme uses the tilt of the entire mechanism to operate mercury switches which control an electrically operated dilution valve.

In one of the regulators wherein the torque is measured electrically, current relays are used to control an electrically operated dilution valve, equipped with limit switches, solenoid brake, with a graduated valve opening; and an electrical time delay is incorporated in the circuit to reduce or eliminate hunting.

In a typical hydraulic regulator which uses the weight of the friction cylinder as an indication of viscosity, the dilution valve is operated by a double-faced ratchet wheel with opposed pawls for opening or closing the valve. This mechanism is very similar to that commonly used on the automatic felt and wire guides.

A Recent English Model

Recently a regulator was brought over from England which is based on head loss in a stream of stock traversing a sluice. The hydraulic gradient between two points in the sluice is determined by a pair of bubbling tubes arranged as shown in Fig. 6. The air operated controller correspondingly regulates the dilution valve. The immediately apparent objection to this arrangement is the return, to the chest, of regulated stuff, and also the time interval between

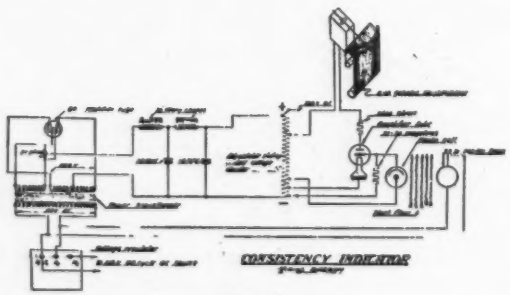

Fig. 7.

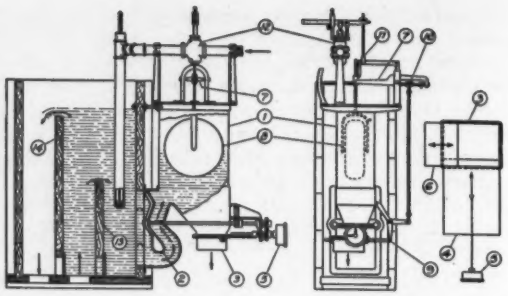

Fig. 8.

correction and determination. This regulator seems, however, to have satisfied several users in spite of its limitations.

Widely used in numerous European installations, is a regulator based upon the hydraulic gradient in a sluice wherein determination is made by a float in the general nature of a "sleigh." In this case the indicator float is not called upon to provide the power for operating the dilution valve, but simply gives its indication to a motor driven impulse transmitter so that the motor provides the necessary power. The device is shown in Fig. 9. This particular illustration involves return of regulated stock to the chest; but this device has proven very versatile in numerous European installations and has been adapted to all sorts of arrangements. Fig. 10 shows an application of this device wherein unregulated stock is returned to the chest and the regulated stock is passed on to the paper machine.

Hydraulic type regulators, wherein viscosity is measured by the air pressure in a bubbling pipe, generally use that pressure to control a diaphragm operated valve sometimes through a secondary pilot valve of similar type, for the dilution water.

Regardless of which scheme is used for either viscosity determination or for dilution valve control, the possibility of hunting may be reduced or eliminated by having the sampling point follow the dilution point as closely as is physically possible. This cuts down the volume of "off-consistency" stock which must pass before correction to desired conditions may be effected.

For the maintenance of constant head most of these devices involve a return of some stock to the chest. In some of these devices the arrangement is such that regulated (or in other words diluted) stock is returned to the chest. It is obviously more desirable to have the heavier unregulated stock returned to the chest so that the consistency in the chest is not thus reduced and the capacity of the chest in respect to dry fibers thereby diminished.

If operators more closely understand the general principles of consistency regulation, there should be much less trouble in the selection and installation of a device which will satisfactorily maintain desired stock conditions.

Optical Schemes

Schemes based upon viscosity will not operate when consistencies are low because the viscosity of stock below one per cent approaches that of water.

In 1930 a group of investigators made extensive experiments with a setup based upon absorption of radiant energy by particles suspended in water. While we do not know of any subsequent commer-

cial application of their particular setup, a description of it may be interesting. They used a controlled incandescent lamp as a source of radiant energy. A lens system was used to direct the light through the stock, and the transmitted light was focused on a thermocouple. The experiments were either not continued to the originally desired extent, or if so, we were unable to locate any written reports covering the completed work. It may be stated, however, that they did establish some relation between consistency and the transmission of radiant energy through the stock.

Other Analogous Schemes

Some time later, in a west coast pulp mill an analogous scheme was installed in rifflers, but a photoelectric cell replaced the thermocouple and the arrangement was assembled with commercially available electrical equipment.

In 1938, an extension of that arrangement was installed in a west coast paper mill. Mounted in a waterproof fixture at 75 w. exciter lamp and a fixedly spaced photoelectric cell are immersed in the rifflers. The photocell actuates an amplifier, the output of which is indicated and recorded on a recording milliammeter. To insure constant illumination a voltage regulator is used to eliminate any possible variations in the 110 v. a.c. source. To improve sensitivity the amplifier and the photocell are both supplied with d.c. rectified from the regulated a.c. The circuit is said to have been as shown in Fig. 7.

Weight Regulation

With the stock regulated as to consistency, it becomes a relatively simple matter to regulate sheet weight by controlling the flow of the regulated stock going to the paper machine.

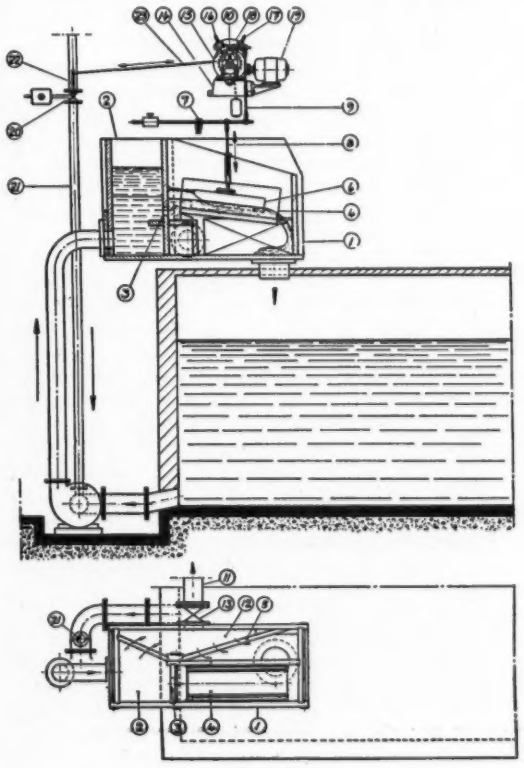

FIG. 9.

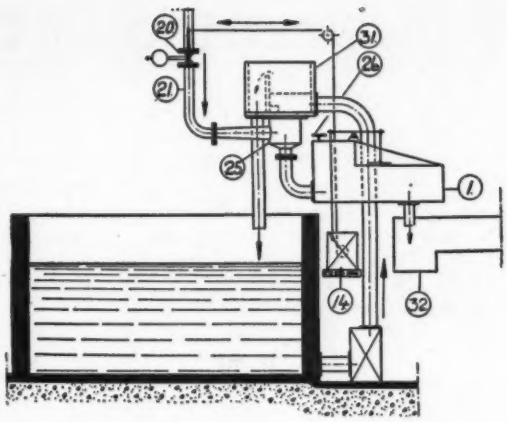

FIG. 10.

The simplest method of flow regulation will probably continue to be based upon the old headbox principle, where a constant head is maintained on an opening which can be regulated, as with a movable gate. Probably not quite so convenient in most cases, but applicable in certain instances, is a method of using a variable head on stock going through a fixed opening.

Combination Instruments

There have been numerous machines developed and sold which are intended to directly control sheet weight. One of these (Fig. 8), is fed with stock at a fixed head. Under this head the stock flows through a torturous passage into a separate float compartment, from which it is discharged through an adjustable gate. The float in the second compartment operates both the dilution valve and the gate, with the diluent being fed to the stock just before the stock leaves the first compartment of the headbox.

Obviously, flow from the first compartment to the float chamber depends on the difference in head between the two chambers and the viscosity of the stock going through the interconnecting passage. The flow from the second compartment or float chamber depends on the head in that chamber, the gate opening, and the viscosity of the stock going through the gate. The float is so linked to the water valve and the final gate that volume and dilution are treated oppositely in such a ratio that weight is said to be regulated directly.

An older scheme was concerned with a "shovel" or pan (Fig. 9) against which stock under fixed head was jetted from a gate. The shovel was so linked to the gate that a less viscous stock, jetting farther out from the gate would serve to further open the gate. Linkage friction appeared to be an invalidating factor.

Ultimate Yet to Be Achieved

Not being a vendor of any particular regulator, we have refrained from naming any of the devices we have described. This paper is presented simply to set forth the principles, operating characteristics, and limitations of the commonly used regulators; and we, therefore, cannot draw any conclusion beyond our belief that the ultimate in regulation is yet to be achieved.

Dimensional Changes in Paper*

By H. W. Bialkowsky[1] and T. R. Probst[2]

Abstract

An apparatus is described which measures the dimensional changes of paper with relative humidity; accommodates 20 samples at once; is inexpensive to assemble; and is accurate. Another apparatus is described by which the dimensional changes of papers upon immersion can be measured.

The normal bond papers change in dimensions about 0.6 per cent in the machine direction and 1.6 per cent in the cross direction, when the relative humidity varies from 95 to 15 per cent.

The basis weight and furnish (if of long fibered stock) seem to have little effect on the dimensional changes.

The machine and cross directions change about the same amount when the relative humidity is lowered from 50 to 15 per cent; while if the relative humidity is increased from 50 to 95 per cent the cross direction expands about 7 times as much as the machine direction.

The dimensional changes vary across the width of the machine.

There is no good correlation between dimensional changes caused by varying the relative humidity and the expansion incurred by actual wetting of the sheet.

The expansion and contraction of paper with changes in moisture content, caused either by humidity changes or actual wetting, has been recognized for a long time as one of its fundamental properties. The obvious importance of these changes in papers to be used in printing, charting, mapping, photography, blueprinting, and the like, need not be again stressed, while the secondary effects of these changes on curl, wavy edges, cutting inaccuracies, etc., have yet to be determined. At any rate, such dimensional changes will be with us as long as there are varying humidities in rooms, both where the paper is manufactured and used, and also whenever paper must be moistened or actually wetted in its use requirements.

Historical Survey

That the subject of dimensional changes in paper is not a new one is evidenced by the numerous articles which have been published in the literature. In the cases where an apparatus was developed or used for measuring the magnitude of dimensional changes, the methods employed can be divided into those which involve an actual immersion of the sample in the liquid, usually water, and those which utilize a change in the relative humidity of the air surrounding the sample.

A second natural classification of the instruments described in the literature may be obtained by a consideration of the method used in measuring the dimensional changes encountered. First, there are the setups which read the changes directly by means of a cathetometer or the like; secondly, there is a large class which uses multiplying gears to record the changes so that a scale may be read directly; lastly, some of the instruments described make use of the well-known optical lever principle.

A third and final classification of the instruments lies in the simple consideration of whether the sample strip was horizontal or vertical.

Among those articles which are concerned with the dimensional changes of paper is that of Roberts *(10)* who measures his expansions directly. Another excellent paper is that by Van den Akker *(13)* who quite recently described a satisfactory method of measurement of these changes by means of a direct-reading calibrated dial. The strips were suspended vertically and kept taut by means of a spirit level which also served the purpose of enabling the end of the strip to be returned to its original position, thereby measuring the changes. Larocque *(8)* used a cathetometer to measure directly the changes in dimensions of vertically suspended strips when the humidity was changed. Koester *(7)* has patented an apparatus consisting of a pointer and multiplying mechanism, whereby the dimensional effects of relative humidity upon paper samples may be determined and also recorded. Hamburger *(5)* described an instrument comprising a directly connected indicating device for a vertically suspended strip and a hair hygrometer. The A. D. Little Inc. expansiometer has been described ably by R. C. Griffin *(4)*. An instrument which records dimensional changes in vertically suspended strips by means of an optical lever has been described by Weber and Geib *(14)*.

The previously mentioned articles were concerned with measurement of expansion and contraction of papers caused by relative humidity changes, however, other articles have appeared regarding changes brought about by actual immersion and wetting of the sample strip. In this regard, Davis and Stovall *(3)* describe a method used on photographic papers. Their method comprises punching 2 holes a definite distance apart in the sample, developing the paper, followed by washing, drying, reconditioning, and the subsequent direct measuring of the change in original distance between the holes. Larocque *(8)* has published some data on typical tests obtained by a wet extension test. An anonymous article has described the Schopper instrument for the measurement of stretch of paper upon immersion *(2)*. In this case, the vertically suspended strip is directly connected to a graduated dial. Harrison *(6)* describes an apparatus which is suitable for measuring changes involved with relative humidity variations as well as actual immersion; the vertically suspended strip is directly connected by mechanical means to a pen arm spindle.

While there are some data available in the literature on the magnitude of these dimensional changes, it is difficult to correlate the figures, because the measurements made by various investigators were carried out with different degrees and ranges of humidity changes, as well as actual immersion. For instance, Hamburger *(5)* mentioned that for a relative humidity change of 64 to 20 per cent, an offset paper changed 2½ times as much in the cross direction as the machine direction. Griffin *(4)*, using a relative humidity change of from zero to 100 per cent, found

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for a wide variety of papers a cross direction change of 1.1 to 1.8 per cent and a machine direction change of 0.35 to 0.85 per cent. In addition, the change from 80 to 100 per cent relative humidity was greater than that from 60 to 80 per cent relative humidity. Reed *(9)* worked with changes in relative humidity of 35 to 65 per cent and listed values for coated papers, for which the cross direction changes were 2 to 3 times those of the machine direction, while for offset paper it was 4 to 8 times. In addition to determining the rate of moisture pickup from zero per cent relative humidity to 20 and 50 per cent, Laroque *(8)* found the dimensional changes in bond paper to be 0.40 per cent for the cross direction and 0.12 per cent for the machine direction, when the relative humidity was increased from 25 to 65 per cent. On the other hand, he found the wet extension test gave values for the same paper of 0.3 per cent for the machine direction and 2 per cent for the cross direction. Typical data obtained for writing papers on the Schopper stretch tester, which involves actual immersion, are 0.8 per cent for the machine direction and 2.9 per cent for the cross direction. An anonymous article *(1)* cites the work of Winkler and Karstens who found by direct wetting an expansion of 0.2 to 0.5 per cent for the machine direction and 0.8 to 1.6 per cent for the cross direction, while the same article mentioned work of Klemm who found an expansion of zero to 1.5 per cent for the machine direction and 0.5 to 2.5 per cent in the cross direction by direct wetting.

Thus, the magnitude of the expansion caused by actual immersion of a sample strip agrees fairly well in the literature, but those dimensional changes caused by relative humidity changes are difficult to compare because of the different procedures used by the various investigators. In an attempt to simplify and standardize, the present work involves the measurement of dimensional changes with changes in relative humidity starting at 50 per cent, raising to 95 per cent and then lowering to 15 per cent. This range would almost cover the extremes encountered, when papers are used commercially and should give some practical data upon the ordinary dimensional changes to be encountered in actual use.

Methods and Materials

Relative Humidity

Sample holders were made so that the strips would be about 25 cm. long, would lie horizontally, and would be held taut by small weights attached to the ends of the strips (Fig. 1). The weights had a mass of 32 g. and hung in a vertical position. Two sample holders were placed in tandem in glass tubes having a diameter of 1.85 inches. The platform, in the glass tubes to hold the sample horizontally and still permit the weight to hang downward, was made by building a mold and then introducing molten paraffin, which upon solidification gave a satisfactory, nonhygroscopic support. The ends of the tubes were closed by means of rubber stoppers and were joined in series by rubber tubing (Fig. 2). Series connections were used instead of parallel in order to obviate any short circuiting of the air flow.

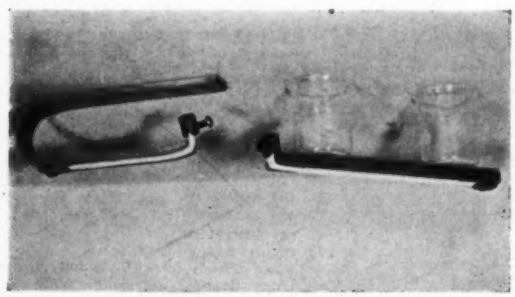

Fig. 1.

Left—Sample Holder for the Relative Humidity Method. Right—Sample Holder for the Immersion Method.

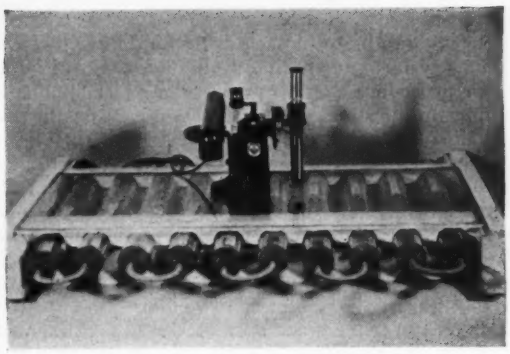

Fig. 2.

Relative Humidity-Dimensional Change Apparatus.

The whole series of tubes were mounted upon a wooden frame, over which a piece of plate glass was placed. Then, the sample strips could be observed by means of a Central Scientific Co. measuring microscope (Fig. 2).

A source of air was obtained from a compression tank, in which line a variable reducing valve was inserted. Air at 95 per cent r.h. was obtained by bubbling through 3 bottles of a solution of saturated sodium carbonate in series; while 15 per cent relative humidity air was obtained by passing the air first through a bottle of solid calcium chloride and thence through 3 bottles of saturated lithium chloride in series. A final catch bottle filled with glass wool was provided for each series to reduce entrained liquids and solids to a minimum. Since the whole apparatus was assembled in a constant humidity (50 per cent), constant temperature (76 deg. F.) room, the temperature of the saturated solutions was constant; and, therefore, the relative humidity of the air from each set of solutions was always the same.

The humidified air was then passed through a calibrated orifice, and the flow was measured by means of a mercury manometer. The flow was normally maintained at about 5 l.p.m., and was passed directly into the first glass tube of the apparatus.

The relative humidity of the air issuing from the last tube was determined by means of a dew point apparatus consisting of a shiny piece of thin metal fastened by de Khotinsky wax to a hole blown in a test tube. This test tube together with an inlet and exit tube were inserted in a rubber stopper and fastened into a pint mason jar. The inlet tube was bent so that the air impinged upon the face of the metal. Thus, by placing water in the test tube and gradually lowering its temperature, the dew point could be reached and the relative humidity determined. Because of the negative heat of solution of potassium nitrate, it was found suitable to start with water in the tube about 1 deg. above the dew point expected

for the humidity in question, and then the temperature was gradually lowered by adding potassium nitrate crystals and stirring to dissolve them (Fig. 3).

The procedure used was first to humidify the paper samples in question, so that they were in equilibrium with the 50 per cent r.h. and 76 deg. F. of the humidity room. Fifteen-mm. wide strips were then cut in in the proper direction and were inserted on the sample holders. After the weights had been screwed on the part of the strip hanging over the end, a line was carefully drawn coinciding with the line on the sample holder which marked off exactly 20 cm. from the clip holder. The prepared holders were then inserted in the glass tubes so that check samples were placed in different tubes. The rubber stoppers were inserted in the ends of the glass tubes; the tubes were connected in series and then air of 95 per cent r.h. was passed through until equilibrium had been attained. The microscope was then placed upon the covering glass plate, and the elongation from the reference point was measured. Similarly, then, the air was shifted to the dry side of the setup, so that air of 15 per cent r.h. was supplied; another period was allowed for equilibrium to be reached, and the shrinkage from the reference point was measured for the 20 samples.

The accuracy of measurement was ±0.001 cm. or 0.1 per cent and the humidity could easily be determined to ± 1 per cent.

Immersion

Fig. 1 shows the brass holders that were prepared for this method. The samples 1.5 cm. wide and 17 cm. long, were clamped in place, and a line coinciding with a permanent mark on the holder for a distance of 10 cm. was drawn on the sample. Once again small weights were screwed on the end of the strip to hold the paper taut. Then the strip was immersed, as shown in Fig 4, for 1 min. in water at 23 deg. C., and the expansion was measured by means of the same measuring microscope mentioned before. It will be noted that this method was also carried out in the constant humidity room.

Results and Discussion of Results

Probable Error In Measurement

The probable error in measurement was determined for a few sets of 10 strips of the same paper. The

Fig. 4.
Immersion-Dimensional Change Apparatus.

readings were taken as usual, the total changes were recorded, and the probable error (P.E.) calculated from the following formula:

$$\text{P. E.} = 0.6745\sqrt{\frac{D^2}{N-1}}$$

D = deviation from the mean
N = number of readings

It was shown that the probable error for 10 readings was 0.0118 mm. and for 2 readings was 0.022 mm. Thus, the values obtained were quite accurate.

Effect of Basis Weight upon Dimensional Changes

Papers from all sulphite to all rag content and ranging in folio basis weight from 9 to 47 lb. were investigated. Over this wide range of weights, from 15 to 95 per cent r.h., the change in dimensions in the machine direction averaged 0.58 per cent, while

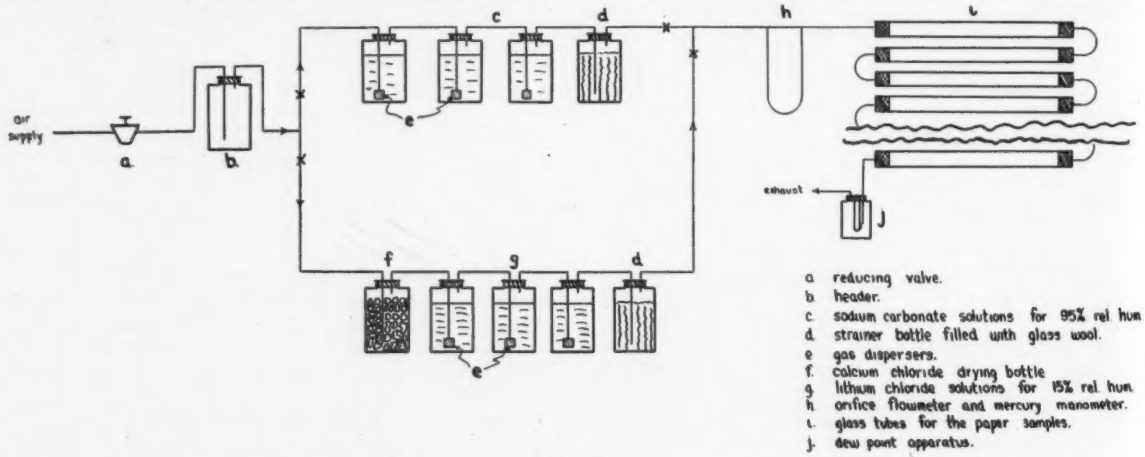

Fig. 3.
Flow Sheet for the Relative Humidity-Dimensional Change Method.

TABLE I.—EFFECT OF BASIS WEIGHT ON DIMENSIONAL CHANGES
Total dimensional change from 95 to 15% r.h.

Cross machine direction						Machine direction	
Folio wt. lb.	Change, %	Folio wt. lb.	Change, %	Folio wt. lb.	Change, %	Folio wt. lb.	Dimensional Change, %
9	2.03		1.29		1.69	13	0.54
	1.78		1.44		1.85		.55
	2.12		1.70		1.58		.62
	2.15				1.81		.61
	1.68	20	2.15		1.39		.54
			1.38		1.53		.62
13	1.81		1.48		1.13		.54
	1.32		1.33				.50
	1.18		1.56	20	1.27		.70
	1.36		1.37		1.61		.67
	1.61		1.63		1.46		
	1.58		1.48		1.49	16	.76
	1.78		1.22		1.35		
	1.46		1.23		1.49		.79
	1.59		1.63		1.96		.53
	1.42		1.80		1.25		.51
	1.61		1.46		1.30		.60
	1.53		1.35		1.22		
	1.37		1.36		1.86	20	.46
	1.49		1.76		1.85		.53
			1.33				.54
16	1.09		1.15	24	1.52		.43
	1.68		1.31		1.67		.54
	1.70		1.50		1.41		.55
	1.73		1.16		1.26		.64
	1.42		1.51		1.50		.63
	1.71		1.45		1.37		.60
	1.48		1.15		1.34		.67
	1.26		1.53		1.39		.59
	1.56		1.70		1.33		.60
	1.63		1.34				.72
	1.47		1.71	28	1.56		
	1.69		1.85		1.43	24	.50
	1.91		1.57		1.70		.49
	1.87		1.81				.53
	1.35		2.00	47	1.49		
20	1.95		1.80		1.51	28	.58
	1.69		2.02		1.49		
	1.45		1.66				
			1.48				

TABLE II.—AVERAGE DIMENSIONAL CHANGES FOR 95 TO 15% R. H.

Basis wt. 17x22—50	Direction: Machine %	Direction: Cross %
9		1.95
13	0.59	1.51
16	.65	1.57
18		1.67
20	.58	1.55
24	.51	1.42
26	.58	1.39
28		1.56
47		1.49

in the cross direction the change averaged 1.62 per cent. Detailed values are shown in Table I, and the average values are shown in Table II. It is readily seen that the effect of basis weight upon the dimensional changes is of less magnitude than the variation between different samples of the same sheet. It might also be added that the effect of varying the sulphite-rag furnish was proven to be of small magnitude.

Comparison of Expansion to Shrinkage

A most interesting fact was found when the expansion caused by raising the relative humidity from 50 to 95 per cent was compared to the shrinkage incurred when the relative humidity was lowered from 50 to 15 per cent. These results are shown in Table III, while for convenience, the average results are shown below:

	Expansion 50%→95% r. h. %	Contraction 50%→15% r. h. %
Machine direction	0.15	0.42
Cross direction	1.01	.44

The contraction from 50 to 15 per cent r.h. is practically the same for both the machine and cross directions; while the two changes are radically different, when the humidity is raised from 50 to 95 per cent; in fact, the cross direction changes in dimensions are 6 to 7 times as much as the machine direction.

Variation of Dimensional Changes Across the Paper Web

Dimensional change measurements were also made on samples taken at various places across the paper machine web. The data are given in Table IV. The total changes in cross direction dimensions for a humidity change of 95 to 15 per cent are greater on the edges of the sheet than the center. This might possibly be predicted from the fact that the edges of the sheet shrink more in drying than does the center, however, these data emphasize the importance of knowing the origin of a sample in relation to the paper machine web when comparisons are to be made.

Effect of Changing the Humidity Cycle

As a matter of interest, 10 samples of 20-lb. folio sheets were subjected to the following test: first, one set of samples were run through the normal 50-95-15 per cent r.h. cycle; then a second set of samples were tested, when the cycle was reversed, i.e., 50-15-95 per cent. The results are shown in Table V.

When the low humidity is used first, the total expansion is about 0.15-0.20 per cent higher than if the normal humidity cycle is used for the cross direction. Further, this increase is seen to be on the contraction side, while the expansion is about the same. The reason for these differences probably lies in the hysteresis effect, and the results indicate the importance of following the same humidity cycle in order to obtain comparative results.

Two Humidity Cycles

As another experiment, 10 samples were cut in the cross direction, subjected to the normal cycle of

TABLE III.—EXPANSION VERSUS SHRINKAGE.

Cross direction				Machine direction	
Exp.*	Contr.*	Exp.	Contr.	Exp.	Contr.
1.88	0.62	1.23	0.22	0.10	0.44
1.49	.46	1.14	.34	.11	.44
1.23	.66	1.10	.24	.11	.31
0.79	.60	1.11	.37	.19	.34
0.72	.68	1.44	.51	.14	.43
1.22	.48	0.80	.45	.18	.48
1.06	.29	0.82	.48	.23	.52
1.13	.29	0.83	.40	.24	.46
1.15	.49	1.25	.60	.25	.52
1.06	.57	0.95	.42	.08	.47
1.12	.62	0.92	.32	.13	.42
1.05	.68	0.94	.31	.14	.48
0.91	.48	1.05	.36	.18	.43
0.99	.45	1.01	.41	.12	.40
1.03	.49	0.95	.32	.14	.47
1.18	.66	1.23	.28	.18	.44
0.99	.59	1.24	.28	.21	.39
1.30	.55	1.04	.34	.18	.48
1.43	.58	1.25	.24		
1.21	.59	0.94	.47		
1.38	.65	0.84	.40	ave. .15	.42
1.31	.45	0.87	.43		
0.91	.65	0.98	.48		
1.30	.47	0.91	.47		
0.96	.38	0.80	.47		
1.17	.34	1.03	.53		
0.88	.24	1.07	.35		
0.94	.32	0.96	.37		
1.22	.38	1.06	.44		
		ave. 1.01	.44		

* Exp.—Percentage expansion from 50 to 95% r. h. Contr.—Percentage contraction from 50 to 15% r. h.
All sheets 20 lb. folio.

TABLE IV.—VARIATION OF DIMENSIONAL CHANGES ACROSS THE PAPER WEB
All samples cut cross direction; dimensional changes are for a r. h. change of 95 to 15%.

Sample	Front %	Center %	Back %
1	1.63	1.23	1.65
2	1.74	1.29	1.73
3	1.33	1.15	1.31
4	1.50	1.16	1.51
5	1.73	1.42	1.71
6	1.59	1.42	1.61
7	1.53	1.37	1.49
8	1.40	1.26	1.50
9	1.48	1.28	1.59
10	1.70	1.34	1.71

50-90-15 per cent r.h. and measurements taken as usual; then, the samples were allowed to come to equilibrium at 50 per cent r.h. and the whole cycle repeated. The results are shown in Table VI.

TABLE V.—EFFECT OF CHANGING THE HUMIDITY CYCLE

Normal cycle is 50—95—15% r. h.; reversed cycle is 50—15—95% r. h.

	Normal cycle			Reversed cycle		
Sample	Exp., %	Contr., %	Total, %	Contr., %	Exp., %	Total, %
1	1.13	0.42	1.55	0.56	1.14	1.70
2	0.95	.33	1.28	.48	0.95	1.43
3	0.99	.31	1.30	.49	1.01	1.50
4	1.06	.38	1.44	.60	1.01	1.61
5	1.08	.32	1.40	.48	1.07	1.58
6	0.97	.32	1.29	.48	1.07	1.58
7	1.22	.28	1.50	.51	1.25	1.76
8	1.18	.27	1.45	.51	1.19	1.70
9	0.97	.33	1.30	.42	1.00	1.42
10	1.05	.37	1.42	.55	1.13	1.68

TABLE VI.—EFFECT OF TWO CYCLES

	First cycle			Second cycle		
Sample	*Exp., %	*Contr., %	Total, %	Exp., %	Contr., %	Total, %
1	0.94	0.47	1.41	0.95	0.44	1.39
2	0.84	.40	1.24	0.86	.35	1.21
3	0.87	.43	1.30	0.88	.40	1.28
4	0.98	.48	1.46	1.01	.46	1.47
5	0.91	.47	1.38	0.93	.45	1.38
6	0.86	.40	1.26	0.87	.39	1.26
7	1.03	.53	1.56	1.02	.51	1.53
8	1.07	.35	1.42	1.09	.34	1.41
9	0.96	.37	1.33	0.94	.37	1.31
10	1.06	.44	1.50	1.08	.44	1.52

* Exp. is the expansion from 50 to 95% r. h. Contr. is the contraction from 50 to 15% r. h.

These data point out that the second cycle has the same total dimensional change as the first cycle, within experimental error. These results agree with those of Seborg *(11)*, who found that even after 7 consecutive cycles a hysteresis loop persists and that the values are practically the same. Thus, in actual use, writing papers will have about the dimensional changes indicated earlier, even though they can conceivably go through several cycles in relative humidity changes, due to natural atmospheric variations.

Immersion *vs.* Dimensional Changes

Because of the fact that the measurement of dimentional changes with the use of humidified air is at best quite time-consuming, the immersion method mentioned in an earlier section of this paper was developed and used; because such tests are easily and quickly executed, and it was hoped that the 2 methods might correlate to some extent. Numerous tests were run, and a few typical values are shown in Table VII.

TABLE VII.—COMPARISON OF RELATIVE HUMIDITY AND IMMERSION METHODS

Total change 15-95% r.h. %	Immersion expansion %
1.25	2.33
1.34	2.05
1.37	3.06
1.39	2.78
1.42	1.76
1.43	2.08
1.45	3.02
1.47	3.13
1.48	2.89
1.51	2.69
1.53	3.08
1.56	2.56
1.57	3.51
1.58	2.75
1.60	3.17
1.62	3.11
1.63	3.79
1.66	3.76
1.69	3.75
1.69	4.09
1.71	3.01
1.74	4.00
1.80	3.54
1.81	5.03
1.81	4.64
1.85	4.58
1.85	4.80
1.93	4.11
1.94	5.06
2.00	4.75
2.02	5.10
2.54	3.94

It is seen that the 2 methods do not correlate well. The immersion method gives values greater than those of the humidified air method, and can be explained by the fact that the added factor of swelling has been introduced. Such results are explained by the Von Shroeder effect, according to Stamm *(12)*; i.e., elastic gels, including cellulose, show a greater sorption of water and swelling when immersed in liquid water than when brought to 100 per cent r.h. in the vapor phase. There are no generally accepted explanations of this, but the fact has been found repeatedly. It has been found, however, that the immersion method values closely approximate the shrinkage encountered in drying the sheet on the paper machine. Apparently, then, to obtain a true picture of the dimensional changes to be encountered in papers due to varying humidity, the humidified air method must be used; on the other hand, the immersion method can probably be of value as a test for papers, where the use requirements necessitate an actual wetting of the sheet, such as photography, intaglio engraving, and other special types of printing.

Conclusions

An apparatus has been described which permits the convenient measurement of the dimensional changes with varying relative humidity of a large number of paper samples. In addition, another method was developed to determine the magnitude of dimensional changes of paper caused by immersion in water.

Data show that normal bond papers change in dimensions about 0.6 per cent in the machine direction and 1.6 per cent in the cross direction, when the relative humidity varies from 95 to 15 per cent. The basis weight and furnish (if of long fibered stock) seem to have little effect on dimensional changes.

The machine and cross directions shrink about the same amount when the relative humidity is lowered from 50 to 15 per cent; while if the relative humidity is increased from 50 to 95 per cent, the cross direction expands about 7 times as much as the machine direction.

There is no good correlation between dimensional changes caused by varying the relative humidity and the expansion incurred by actual wetting of the sheet. The dimensional changes vary across the width of the paper machine web.

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Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING JULY 6, 1940

SUMMARY

Newsprint .....41 bls., 9,440 rolls
Tissue .....7 cs., 216 bbls.
Wallpaper ..... 12 bxs.
Miscellaneous Paper .....35 cs.

NEWSPRINT

H. G. Craig Co., Inc., ———, Donnacona, 348 rolls.
International Paper Co., ———, Gatineau, 289 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 374 rolls.
———, ———, Liverpool, N.S., 5,327 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 334 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 323 rolls.
International Paper Co., ———, Gatineau, 282 rolls.
H. G. Craig Co., Inc., ———Donnacona, 341 rolls.
Jay Madden Corp., *Mathilda Thorden,* Liinahamari, 41 bls., 941 rolls.
H. Reeve Angel & Co., Inc., *Mathilda Thorden,* Liinahamari, 453 rolls.
———, ———, Corner Brook, 428 rolls.

TISSUE PAPER

Walker Goulard Plehn Co., Inc., *Mathilda Thorden,* Liinahamari, 6 cs.
Manifold Supplies Co., *Mathilda Thorden,* Liinahamari, 47 bbls.
Miller-Bryant-Pierce Co., *Mathilda Thorden,* Liinahamari, 126 bbls., 1 cs.
Neidich Process Co., *Mathilda Thorden,* Liinahamari, 43 bbls.

WALLPAPER

International F'd'g Co., *Mathilda Thorden,* Liinahamari, 12 bxs.

MISCELLANEOUS PAPER

Japan Paper Co., ———, Kobe, 19 cs.
———, ———, Kobe, 16 cs.

RAGS, BAGGINGS, ETC.

W. Lowenthal, *Mexico,* Havana, 6 bls. rags.
M. Siegal & Sons, *Buenos Aires,* Buenos Aires, 3 bls. old rags.
Irving Trust Co., *Exporter,* Bombay, 698 bls. old jute rags.
W. Intner, Inc., *Exporter,* Bombay, 200 bls. cotton waste.
Camden Fibre Mills, *Exporter,* Bombay, 200 bls. cotton waste.
Castle & Overton, Inc., *Exporter,* Bombay, 273 bls. jute rags.
J. Levy & Son, *Monterey,* Havana, 21 bls. 13 bags rags.
———, *Monterey,* Havana, 41 bls. rags.

CASEIN

American British Chemical Supplies, *Mormacland,* Buenos Aires, 417 bags, 25,020 kilos.
T. M. Duche & Sons, Inc., *Mormacland,* Buenos Aires, 500 bags, 30,000 kilos.
Balfour Guthrie & Co., *Buenos Aires,* Buenos Aires, 3,750 bags, 225,000 kilos.
Packing Products Co., *Buenos Aires,* Buenos Aires, 176 bags, 10,020, kilos.
Balfour Guthrie & Co., *Molda,* Buenos Aires, 3,387 bags, 203,200 kilos.
A. Hurst & Co., *Molda,* Buenos Aires, 250 bags, 15,000 kilos.
Casein Co., of America, Inc., *Molda,* Buenos Aires, 3,334 bags, 200,040 kilos.
Chase National Bank, *Molda,* Buenos Aires, 2,540 bags, 152,400 kilos.

WOODPULP BOARDS

Jay Madden Corp., *Mathilda Thorden,* Liinahamari, 344 bls., 784 rolls.

BOSTON IMPORTS

WEEK ENDING JULY 6, 1940

———, ———, Liverpool, 96 bls. rags.
Chase National Bank, *Molda,* Buenos Aires, 417 bags casein, 25,020 kilos.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 6, 1940

Pulp Sales Corp., *Mathilda Thorden,* Liinahamari, 7,572 bls. prime strong sulphite cellulose; 2,500 bls. prime strong sulphate cellulose.
Jay Madden Corp., *Mathilda Thorden,* Liinahamari, 1,341 rolls woodpulp boards.
S. Walter, Inc., *Mathilda Thorden,* Liinahamari, 718 bls. wrapping paper.
Terminal Paper Co., *Mathilda Thorden,* Liinahamari, 191 rolls, 26 bls. wrapping paper.
Castle & Overton, Inc., *Molda,* Buenos Aires, 54 bls. old house cloths, 49 bls. old white cotton rags.

NORFOLK IMPORTS

WEEK ENDING JULY 6, 1940

Reliance Bagging Co., *Exporter,* Bombay, 212 bls. jute rags.

LOS ANGELES IMPORTS

WEEK ENDING JULY 6, 1940

———, *Asama Maru,* Yokohama, 3 cs. colored paper.
———, *Nitta Maru,* Shanghai, 2,200 bls. old rags.
———, *Kunikawa Maru,* Shanghai, 90 tons bagging.
———, *Hokkai Maru,* Osaka, 5 cs. tissue paper.
———, *A. M. Baxter,* Ocean Falls, 2,255 rolls newsprint.

Maryland Paper Men Meet

Harry W. Turner of Baltimore was elected president, and the name of the Maryland and District of Columbia Paper Trade Association, Inc., was changed to the Maryland Paper Trade Association at the annual meeting of the organization held recently at Rugby Hall, on the Severn river at Revell, Md.

The name of the association was changed owing to the fact the Washington members had previously withdrawn and formed their own organization.

Other new officers for the coming year are Wiley M. Baxter, Baltimore, vice-president of fine paper division; M. Kieswetter, Hagerstown, vice-president of wrapping paper division; W. Edwin Snyder, Baltimore, treasurer, and Albert P. Stevens, Jr., Baltimore, secretary.

The new executive committee is composed of Lee D. Mahon, chairman; Mr. Snyder, Henry Hock, Thomas C. Price, all of Baltimore, and Mr. Kieswetter.

Status of Today's Paper Industry

By Victor E. Hecht, Vice President of the Zellerbach Paper Co., San Francisco.

Speaking before the thirty-fifth annual convention of the Lithographers National Association at Del Monte, Cal., on the status of Today's Paper Supply, Mr. Hecht said, in part. In offering you this address it is hoped that it will contribute to the thinking of your industry. In this discussion reference will be made quite frequently to the fact that pulp represents an international commodity.

We find that in 1909 a total consumption of pulp in the United States, of your bleached and unbleached sulphite and bleached and unbleached sulphate—total six million six hundred and fourteen thousand tons, of which we produced close on to five million tons, leaving us dependent on the European companies for 20 per cent of our consumption and 7 per cent from Canada.

Imports Up 16 Per Cent in Seven Months

We have important figures for a seven months' period. I have taken the period from September through March. It was in September, 1939 that the present European conflict was declared, and I figured that that would be a good indication and we could work from that point. We imported from Europe in 1937-38 this seven-month period, 832,000 tons, and it was stepped up for the last period that we have a record up to 879,000 tons. From Canada our imports increased from 218,000 three years ago, up to 352,000 tons, with a total of 1,050,000 three years ago, and a million two hundred and thirty-two thousand, an increase of practically 25 per cent in this last seven month period. Now, the shipments from Europe for the first seven months of the conflict were 16 per cent higher than the same period a year ago. Six per cent higher than two years ago, from Canada 53 per cent higher than a year ago, and 62 per cent more than two years ago.

Another side of the picture shows the exports of chemical pulp for 1937 through the first quarter of 1940. Here we have evidence once again of the importance of pulp as an international commodity in industry and commerce. In other words, for the first three months of 1937 we exported 38,000 tons, and in the first three months of 1940 we exported 74,000 tons; quite an appreciable increase, you will admit. In other words, for the exportation of pulp for the first quarter, 1940 was almost half of what it was for the entire year of 1939. And that definitely indicates a trend.

Here we have another startling figure, indicating the value and the quantity of paper exports for the first three months of 1939, as compared with 1940. All grades of paper exported for the first three months of 1939, totaled in dollar volume about six and a quarter million dollars, and it jumped for the same period in 1940 to thirteen millions—almost more than double. Coated book exportation of uncoated book, jumped from 3217 tons to the staggering figure of 9,155 tons.

Pulp shipments from Finland and the Scandinavian countries have definitely stopped. Your guess as to when they will be resumed is as good or no better than mine. This should be borne in mind. However, after the first world conflict, even though these countries were not involved as they now are, full production did not come for two years after, due to the fact that supplies of wood, coal and sulphur had to be accumulated. There is a worse condition of depletion now. Then, there is the further possibility of more destruction of foreign production facilities; power plants so necessary to operation are targets for the air forces, because they tend to cripple the defenses of the local areas; forests have been burned. Now pulp being an international commodity, now being sought from North American supply sources from almost every other quarter of the globe, the rayon, plastic and war defense industries are making heavy demands on local pulp products. Other countries besides the United States have been active in the development of their rayon and plastic industries. They are looking to us. Paper exports have jumped within the last few months from three per cent of this country's production capacities to ten per cent of the country's mill capacity; and your own government consumption of paper has jumped within the last few months from five per cent of the total mill capacity of this country to eight per cent.

Possibilities of Expansion in U. S. and Canada

What are the expansion possibilities of the pulp industry in this country and Canada. The expansion of the pulp and paper industry in the United States and Canada for that matter is dependent upon several factors. We realize that to construct a pulp or paper mill merely for the war's duration is unsound and uneconomical. The availability of sufficient wood of the right character must be definitely reckoned with. The activity in the southern states of this country has been by paper mills which produced their pulp for their own consumption, and this may continue in this particular locality and may be enlarged to other points in the United States as well. This should meet the situation to at least a limited degree. American manufacturers realize this fact also, that when reason once again prevails, they will be at a disadvantage in competing in the world's markets with foreign sources because of the high labor costs. depreciated currencies and other influences which of necessity grew out of the war. Ah opportunity for expansion definitely exists in Canada, but with that country at war, the possibilities are minimized. Need for man-power also must be taken into consideration.

But speculatve buying, gentlemen, is to be discouraged. It is basically and economically unsound. Overbuying and advance buying as generally practiced during the last war provided disastrous and costly to many. It is expected that similar mistakes will not be made again. Although it is a fact that our dependence on overseas imports is about five times greater today than it was during the last unpleasantness, we are a resourceful people, and ways and means will be developed to meet each situation as it arises. We may have to resort to the greater use of brownwood pulp in our finished product; or other certain changes in finish may be effected. Rest assured, however, that paper in sufficient quantities and of satisfactory quality will be available for the needs of the industry, which your craft serves so well.

New York Paper and Pulp Market Review

Paper and Pulp Production Declined During Independence Day Holiday But Trend Is Upward — Rag, Rope and Bagging Markets Rather Quiet—Paper Stock Market Less Active With Flat Book Stock Lower.

Office of the PAPER TRADE JOURNAL,
Wednesday, July 10, 1940.

Sales volume in the wholesale paper market continues at a high level, with sales in some important lines below trade expectations, due in large part to the relatively low activity in the printing and allied trades. Reports from many manufacturers' representatives, jobbers, and general paper merchants during the week indicate that sales in general are good and prospects for the future are excellent.

The high level of general industry and trade is indicated by the index of general business activity, which rose to 103.2 per cent for the week ended June 29, from 102.8 per cent for the preceding week, compared with 90.8 per cent for the corresponding week last year.

Paper production of 213 mills for the week ended June 29 was estimated at 94.5 per cent, compared with 81.2 per cent for 1939, with 67.7 per cent for 1938, with 88.6 per cent for 1937, and with 79.4 per cent for the corresponding period in 1936.

Paper board production for the week ended June 29, was 80.0 per cent, compared with 66.0 per cent for 1939, with 39.0 per cent for 1938, with 79.0 per cent for 1937 and with 71.0 per cent for the like week in 1936.

Production of all kinds of paper is reported high with orders and current shipments also at a high level on many grades of sulphite and groundwood papers. Kraft paper production continues high at over 90 per cent of a conservatively estimated capacity and shipments are running high, with an active export trade. Prices on all grades of paper are firm and unchanged.

Mechanical Pulp

No important change in the market situation in mechanical pulp has been reported during the current week. Prices remain firm and unchanged.

Chemical Pulp

No official figures are available at this date on imports of European pulp for June, but total imports for May declined to 2,528 tons, compared with 37,001 tons for April, and with 104,636 tons for May, 1939. Exports of chemical pulp from the United States amounted to 57,923 tons for May, compared with 39,965 tons for April and with 6,211 tons for May, 1939.

Domestic production of chemical pulp for May was over 600,000 tons, and as consumption has continued high, some decline in stocks on hand has been reported.

Rags

The domestic rag market is reported quiet, due to the customary shutting down of mills during the first half of July. No change in prices on any grade of new and old rags has been reported this week. Demand for roofing rags is reported fair.

Old Rope and Bagging

The old rope market is moderately active at this date, with mill buying on a rather cautious scale. Prices are unchanged.

The old bagging market is rather weak with no definite level of prices, which continue practically nominal at this date. No important price changes have been reported this week.

Old Waste Paper

The paper stock market is rather quiet this week as mills close down for the customary mid-year inventory and repair period. Prices are firm with no important changes, excepting lower quotations on sold flat book stock, which is currently quoted at from 1.02½ to 1.07½.

Twine

The twine market is reported moderately active, with prices firm. No important change from current quotations has been reported during the current week.

New Literature

Two new Armstrong steam traps are described in a bulletin just issued by the Armstrong Machine Works, Three Rovers, Mich. These traps, Nos. 800 and 801, supersede the small *No.* 200 series. The new traps are of more rugged construction, provide freer flow of water, have one-piece stainless bucket and single casting size for ½-inch and ¾-inch pipe connections.

Industrial pH glass electrode tester is described in a folder issued by the Wilkens-Anderson Company, 111 North Canal street, Chicago, Ill. This tester was built for plant men and is simple and easy to use, affording accuracy within 0.1 pH unit.

Squirrel cage induction motors, Type CS, of 250 h.p. and larger, are described in a new booklet. No. 3705, issued by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. These motors are available in any of the standard frame types, several of which are suitable for forced air ventilation. Construction details, data on drive applications, etc., are given.

Bowers Envelope Reduces Directors

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 8, 1940—Officials of the Bowers Envelope and Lithograph Company, Inc., of this city, have filed papers with the Indiana secretary of state showing a decrease in the number of directors from seven to five.

Package Paper Co. Changes Shares

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 8, 1940—Officials of the Paper Package Company of this city have filed papers with the Indiana secretary of state showing a change in capital stock to 25,000 shares having no declared par value.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, July 10, 1940.

BLANC FIXE—Prices on blanc fixe are firm and continue unchanged at prevailing market quotations. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is offered at $50 per ton, f.o.b., works.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported fair for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm and unchanged for the week. Standard domestic casein, 20-30 mesh, is currently quoted at from 13 to 14 cents per pound, 80-100 mesh, at from 13½ to 14½ cents per pound. All prices in bags, car lots. Argentina casein is currently quoted at 12 cents per pound. The current quotation of 15 cents per pound on French casein is nominal.

CAUSTIC SODA—Quotations on caustic soda are firm and unchanged at prevailing market levels. Demand reported moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market quotations. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm. Demand reported good. Quotations unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—The rosin market is reported firm. Prices are a little lower for the week. "G" gum rosin is currently quoted at $3.45 per 280 pounds, gross weight, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.45 per 280 pounds, gross weight, in barrels, New York. Seventy per cent gum rosin size is currently quoted at $2.42 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake are firm and nominal. Demand reported good. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. Imported salt cake, quoted at $20 per ton, is nominal.

SODA ASH—Quotations on soda ash are firm and conform to prevailing market prices. Demand continues moderate. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on starch are firm and are a little higher for the week. Pearl is currently quoted at $2.90 per 100 pounds; powdered starch at $3 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Shipments reported steady on contracts. The commercial grades are currently quoted at $1.15; iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue unchanged at prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market levels. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. Quotations on imported talc are nominal.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	" 36.50	32.20	" 37.75
85% Rag	....	"	29.90	" 35.00
75% Rag	23.60	" 27.75	24.75	" 29.00
65% Rag	....	"	21.65	" 26.25
50% Rag	17.55	" 21.50	18.70	" 22.75
25% Rag	14.65	" 17.75	15.80	" 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.95	@ $11.00	$10.10	@ $12.25
No. 2	8.05	" 9.75	9.25	" 11.25
No. 3	7.60	" 9.25	8.50	" 10.75
No. 4	7.30	" 9.00	8.50	" 10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	8.35	"	9.50
No. 2 Offset	7.70	"	9.00
A Grade E. F.	7.50	"	8.75
A Grade S. & S. C.	7.75	"	9.00
B Grade E. F.	6.95	"	8.00
B Grade S. & S. C.	7.20	"	8.25
C Grade E. F.	6.65	"	7.75
C Grade S. & S. C.	6.90	"	8.00
D Grade E. F.	6.40	"	7.50
D Grade S. & S. C.	6.65	"	7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	Nominal		
Dry	Nominal		
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	45.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	4.50
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
(On Dock, Atlantic Ports)			
Kraft Bleached	4.00	"	4.50
Kraft Light & Strong	3.50	"	3.75
Kraft No. 1	3.25	"	3.60
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	3.25	"	3.60
(Delivered)			
Soda Bleached	2.90	"	3.30

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.00	@	7.25
Silesias No. 1	4.60	"	4.75
New Unbleached	6.75	"	7.00
Blue Overall	4.50	"	4.75
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.15	"	3.35

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.15
No. 2	.85	"	.90
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

*How Warren's Pump Audit**

SAVED $200 A MONTH

in One Mill

Power losses up to $200 a month were recently revealed in one mill by Warren's Pump Audit*. The loss was caused by inefficient operation of six 30 hp. centrifugal pumps. After thorough study of the requirements and operating conditions, Warren engineers recommended pump replacements that increased operating efficiency and turned the loss into a saving.

*The *Pump Audit* is a valuable service offered exclusively by Warren: a practical method designed to (1) put your pumping costs *on record* (2) permit an accurate check for excessive maintenance or power consumption (3) reduce your pump operating costs through improved efficiencies. Send for Warren's P. A. Data Sheet, and full facts on how the "Audit" can cut costs in your mill. No obligation.

WARREN STEAM PUMP COMPANY, INC.

Warren, Mass.

7519

"NON-USERS ARE THE LOSERS"

TENAX FELTS

FINISH AND SPEED

YEAR IN—YEAR OUT

Check back through the past years. You'll be interested to note the number of papermills where father and son both have confidently put their stamp of approval on durable, quick-drying TENAX FELTS.

Not on hearsay,—not on chance—but on production tests and records right in their own papermills. They gladly give due credit to TENAX FELTS for satisfactory service; to us for continuous cooperation.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY

NEWFANE, N. Y.–U. S. A.

No. 4 White Linens	2.25	@	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light	2.00	"	2.25
Wool Tares, heavy	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	4.25	"	4.50
Domestic	3.75	"	4.00
Jute Threads	2.62½	"	2.75
Sisal Strings	2.10	"	2.35
Mixed Strings	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1	2.25	@	2.50
Soft White No. 1	1.80	"	1.90
Soft White Extra	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.	1.00	"	1.10
Solid Flat Book	1.02½	"	1.07½
Crumbled No. 1	.70	"	.75
Ledger White Stock	2.15	"	2.25
Ledger Stock Colored	1.65	"	1.70
Manila—			
New Env. Cut	1.70	"	1.80
New Cuttings	1.30	"	1.40
Old Kraft Machine Compressed bales	1.75	"	1.85
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue	.70	"	.75
Strictly Folded	.60	"	.65
Corrugated	.72	"	.77½
No. 1 Mixed Paper	.47½	"	.52½

Twines

(F. o. b. Mill)

(Soft Fiber)			
Coarse Polished—			
India	.19½	@	—
White Hemp	.19½	"	—
Fine Polished—			
Fine India	.24	"	—
Unpolished—			
Box	.15	"	—
Paper Makers	.15¾	"	—
Tube Rope	.17	"	—
Wall Paper	.16	"	—
Wrapping	.18¾	"	—
Soft Fiber Rope	.16¾	"	—
Cotton	.21½	"	—
(Hard Fiber)			
Medium Java	.20	"	—
Mex. Sisal	.17	"	—
Manila	.24¾	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04	"	.04½
Light Silesias	—	"	.04½
Silesias, No. 1	—	"	.04½
Black Silesias, soft	—	"	.03¾
New Unbleached	.05½	"	.06
Washable, No. 1	—	"	.04
Blue Overall	.04½	"	.05
Cottons—According to grades—			
Washable No. 2	—	"	.01¾
New Blue	—	"	.01¾
Fancy Percales	—	"	.03
New Black Soft	—	"	.04
New Light Seconds	.04½	"	.05
New Dark Seconds	—	"	1.55
Khaki Cuttings—			
No. 1 O. D.	.03½	"	.03¾
No. 2 Mixed	.02½		.02¾
Corduroy	—	"	.03
New Canvas	.05½	"	.06
New Black Mixed	—	"	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	2.50	"	2.75
Thirds and Blues—			
Miscellaneous	1.55	"	1.65
Repacked	1.75	"	2.00
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	—	"	.90
Domestic No. 2	—	"	.80
Roofing Bagging	—	"	.70

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	2.25	@	2.75
Manila Rope	—	"	4.50
Sisal Rope	1.75	"	2.00
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	2.50	"	2.75
No. 2	1.10	"	1.15
Wool Tares, heavy	3.50	"	3.70
No. 1 New Light Burlap	3.00	"	3.50
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.50	@	2.55
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	2.00	"	2.10
No. 2 Soft White	1.60	"	1.75
No. 1 Mixed	.90	"	1.00
Solid Ledger Stock	1.90	"	2.00
Ledger Stock, white	2.00	"	2.10
Ledger Stock, colored	1.50	"	1.60
No. 1 Books, heavy	1.10	"	1.15
Manila Cuttings	1.90	"	1.95
Print Manila	.65	"	.70
Container Manila	.55	"	.60
Kraft Paper	1.70	"	1.75
No. 1 Mixed Paper	.40	"	.45
Straw Board Chip	.40	"	.45
Binders Board Chip	.40	"	.45
Corrugated Board	.70	"	.75
Overissue News	.75	"	.80
Old Newspapers	.55	"	.60

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.15
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed	.75	"	.80
Solid Ledger Books	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Old Ledgers	.85	"	—
No. 1 Books, heavy	1.10	"	1.25
No. 1 Books, light	.65	"	.75
Crumpled Stitchless Book Stock	.55	"	.65
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings extra quality	2.35	"	2.60
White Blank News	1.40	@	1.50
No. 1 Kraft	1.40	@	1.50
Extra No. 1 Kraft	1.60	"	1.90
Mixed Papers	.45	"	.50
Print Manila	.50	"	.55
Container Manila	.60	"	.70
Old Newspapers	.50	"	.55
Paper Wool Strings	.95	"	1.25
Overissue News	1.00	"	1.10
Box Board Chips	.40	"	.45
Corrugated Boxes	.55	"	.65
Kraft corrugated boxes	1.25	"	1.40
New Kraft Cuttings	2.00	"	2.25
Screening Wrappers	.60	"	.70

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	2.75	@	—
Domestic	2.25	"	2.50
Sisal Rope	2.25	"	2.50
Mixed Rope	.85	"	1.00
Transmission Rope—			
Foreign	3.50	"	3.75
Domestic	2.50	"	3.00
Soft Jute Rope	3.00	"	3.25
Manila Rope—			
Foreign	4.85	"	5.10
Jute Carpet Threads	1.50	"	1.75
Gunny Bagging—			
Foreign	2.75	"	2.85
Domestic	2.25	"	2.50
Bleachery Burlap	4.00	"	3.25
Scrap Burlap—			
Foreign	2.40	"	2.50
Domestic	2.50	"	—
Scrap Sisal	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares, Heavy	2.40	"	2.50
New Burlap Cuttings	3.75	"	4.00
Aust. Wool Pouches	3.00	"	3.25
Heavy baling bagging	2.60	"	2.90
Paper Mill Bagging	1.75	"	2.00
No. 2 Bagging	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.03
Fancy Percales	.04	"	.04¼
New White No. 1	.07½	"	.07¾
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.07	"	—
Silesias No. 1	.05	"	—
New Black Silesias	3.20	"	3.25
Soft Unbleached	.07	"	.07½
Blue Cheviots	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls	.04½	"	.05
New Black, Soft	.03	"	.03¼
Khaki Cuttings	.03	"	—
O. D. Khaki	.03	"	.03½
Corduroy	.02¾	"	.03
New Canvas	.06¾	"	.07¼
B. V. D. Cuttings	.07	"	.07¼

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues	1.50	"	2.00
Old Blue Overalls	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.00	"	1.25
No. 2	—	"	1.10
No. 3	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons	(nominal)		
Dutch Blues	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians	(nominal)		
Old Linsey Garments	(nominal)		
New Silesias	(nominal)		

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books	.95	"	1.10
Blanks	1.50	"	1.60
Krafts	1.40	"	1.50
New Kraft Cuts	1.60	"	1.75
Overissue News	1.00	"	1.10
Old Newspapers			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1	.95	@	1.00
No. 2	.85	"	.90

China's Paper Production Curtailed

WASHINGTON, D. C., July 10, 1940—Market conditions in the area still under direct control of the Chinese National Government and those under the Japanese military control have changed greatly during the last 3 years. The chances of an increase in the trade volume in the former area are affected by the prohibition as from July 1, 1939, of the importation of luxury types of paper, unless covered by special import permits.

Competition from German and Scandinavian paper makers has decreased. With this has been coupled a curtailment of local production of paper and Japan's material mobilization plan which markedly curtailed Japanese exports to this market.

Shanghai has been and still is the principal paper market in China, although Shanghai's percentage share in China's total paper imports in terms of Customs Gold Units, which was 74 per cent in 1936 and 71 per cent in 1937, dropped to 49 per cent in 1938 and 44 per cent in 1939.

Employees at Neenah To Hold Picnic

Employees of the Neenah, Wis. mills of Kimberly-Clark Corporation will hold their annual picnic Sunday, July 21, at the Lakeview mill park. Claude Smith has been appointed general chairman. Various amusements will be provided, including baseball games and a dance. Tagged balloons will be released and those receiving a response from the furthest distance by their finders will be given a prize.